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PRIMARY CARCINOMA OF THE BRONCHUS

WILLIS S. LEMON, M. D.,
PORTER P. VINSON, M. D.,
HERMAN J. MOERSCH, M. D.,
Division of Medicine
and
B. R. KIRKLIN, M. D.,
Section on Roentgenology,
The Mayo Clinic, Rochester, Minnesota.

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Boyle[1], in 1810, made the first contribution to the literature on the subject of primary carcinoma of the lungs and bronchi. Even though his description was vague, it apparently excited some interest, because within the next fifty years various types of such growths were described, their difference from tuberculosis was established, as well as the clinical manifestations and age incidence. Eberman[2], in 1857, made the first collection of cases and was able to report on seventy-two from the scant literature of the times. He described one case occurring in a child aged nine years. Fifteen years later, Bennett[3] considered primary carcinoma of the lungs and bronchi sufficiently important to choose it as the subject of his Lumlein lecture. He reported thirty-nine cases. Throughout the remaining years of the century, the subject of classification received much attention and was accomplished mainly by the work of Rokitansky, Langhans, Marchiafava and Malassez[4], who made the first microscopic studies. Many additions were made to the literature and growing numbers of cases were reported; in 1912 Adler[4] was able to review and tabulate 374 cases of carcinoma and ninety cases of sarcoma of the lung and bronchus. This report excited general interest in the subject, and called attintention to the relative frequency of occurrence.

INCIDENCE

Brunn, who became interested in the surgical treatment of primary carcinoma, made the following. From 1872 to 1898, a period of twenty-six primary carcinoma of the lung seems to be increasing. From 1872 to 1898, a periond of twenty-six years, 382,671 necropsies showed 159 cases of primary carcinoma, or 0.04 per cent; from 1898 to 1916, a period of eighteen years, 192,271 necropsies showed 488 cases, or 0.24 per cent, six times as great a number. From 1916 to 1924, a period of eight years, 33,308 necropsies showed seventy-one cases, or 0.21 per cent. From 1916 to 1924 is the period after the influenza epidemic; the incidence was no greater than during the previous eight years."

Rusk and Randolph reported twenty-two cases of primary pulmonary carcinoma and stated the incidence to be 1.35 per cent as disclosed by necropsy. Eloesser, in 1925, reported on twenty-seven cases, of which eight were based on necropsy, representing 3.9 per cent of a total number of 206 necropsies, and 20 per cent of forty deaths due to carcinoma. There were circumstances attending the care and transference of patients in the hospital that accounted for this abnormal incidence.

Ewing, in 1922, placed the incidence of primary carcinoma of the lung at 1 per cent, using figures of Karrenstein and Adler[4], who compiled the reports on necropsy from various continental sources and found 168 cases of pulmonary carcinoma among 16,578 necropsies in which carcinoma of some type was discovered.

Allen and Smith quoted the percentage incidence of primary carcinoma as it is found in England, and Habliston referred to the American statistics compiled by one of the great insurance companies. There is but little difference between English and American statistics.

One of the latest reports is that of Rosahn, published in 1930, which constitutes a very careful study of the percentage incidence of primary pulmonary carcinoma with respect both to the percentage of all necropsies and to percentages of carcinomas. He found that, in the period between 1910 and 1919, primary pulmonary carcinoma was found in 0.44 per cent of all necropsies, and in 4.39 per cent of all cases of carcinoma; and, in the period between 1920 and 1930, primary pulmonary carcinoma was found in 0.89 per cent of all necropsies and in 6.98 per cent of all cases of carcinoma. Rosahn concluded that the incidence is increasing.

Since 1925, when our study was begun, a steadily increasing number of positive diagnoses of primary carcinoma has been made in the Section on Diseases of the Thorax at The Mayo Clinic. In the cases included in this report, a positive diagnosis was made only after examination of tissue actually removed from the lumen of the bronchus during a bronchoscopic examination. The diagnosis was not based on clinical impressions, roentgenographic appearance, examination of pleural fluids for carcinomatous cells, or from biopsy of metastatic lymph nodes. Had all of these legitimate accessories to diagnosis been accepted, a much larger number of cases would have been included. In some cases the clinical criteria were satisfactory and in others carcinomatous (metastatic) regional lymph nodes were present. In the former cases were patients whose bronchial tissue was reported as inflammatory but who later died elsewhere of carcinoma. These are not included in the following report of yearly incidence:

From May 1 to December 31, 1925, one case of carcinoma was found among 115 patients examined bronchoscopically; in 1926, ten cases were found among 142 patients; in 1927, eleven cases were found among 188 patients; in 1928, eighteen cases were found among 180 patients; in 1929, eleven cases were found among 169 patients; and, in 1930, twenty cases were found among 191 patients; and to October 30, 1931, twenty-six cases were found among 140 patients. Five adidtional cases were diagnosed in November and December, 1931.

A diagnosis has been made in a steadily increasing number of cases; an increase out of proportion to the number of cases referred for bronchoscopic examination in the section. For example, there were almost three times as many positive diagnoses made in 1931 as in 1927, but there were really fewer bronchoscopic examinations. Moreover, the recognized indications for bronchoscopic examination have remained unchanged throughout the whole period and the technic has not been altered. It would seem that the best explanation for the increase in positive diagnosis is the actual increase in the disease. Other factors, such as greater alertness, greater diagnostic accuracy, more exhaustive examinations and more frequent removal of tissue for biopsy, cannot be disregarded in searching for an explanation of the alarming increase in incidence.

ETIOLOGY

In our series of ninety-six cases, 66 per cent of patients were men, and 61 per cent were aged between forty and sixty years; 4 per cent were aged less than thirty years. Apparently our percentages for age and sex are about the same as those of other observers. Brunn reviewed 576 cases and found 361 patients to be between the ages of forty and sixty years; a percentage of 62. Habliston's series of nineteen cases included fifteen men and four women; the average age was forty-three years and eight months.

The carcinoma was positively related to tuberculosis in 3 per cent of the cases, and in 17 per cent there was an antecedent history of chronic pulmonary suppuration. In many cases bronchiectasis was present, and in a small number of cases abscess and empyema, but these suppurative diseases were the result of the carcinoma, and not its cause or even its antecedent. Sequelae of a suppurative type or ulceration of the carcinoma, however, produced fever in 54 per cent, chills in 14 per cent and clubbing of fingers in 7 per cent of the cases. No special occupation could be considered as contributing to the development of carcinoma. Of the scores of miners examined during the period of our survey, only one was found to have pulmonary carcinoma.

Trauma is usually mentioned as a cause of carcinoma, but, in our series, symptoms of carcinoma developed in only one case following injury to the thorax. It seems probable that trauma is a coincident rather than an etiologic factor.

Regardless of the bare facts quoted, many factors are given a place in the etiology, often as an explanation for the accepted fact that carcinoma of the lungs is rapidly increasing. Meyer stated his belief that the cause of the development of carcinoma of the lung is chronic irritation, "as in every other case of carcinoma." The chronic irritation, he believes, may be due to the breathing of the gaseous distillation products of tar from the exhaust of automobiles in the street, the inhaling of cigaret smoke, and the inhalation of minute particles of dust on streets, especially if oiled, of soot, or of chemicals. He is in agreement with Eloesser and Brunn that the sequelae

of influenza constitute an etiologic factor. Brunn stated: "The presence of post-influenzal metaplasia of the cells lining the bronchi, lately reported by pathologists, gives a starting point, no doubt, for many of the epidermoid or squamous-celled carcinomas arising in the lung. Chronic irritation as a cause seems further to be emphaszied by the fact that it is so predominant in the male sex."

Meyer remarked: "The fact that, in from 85 to 90 per cent of the cases, the disease develops primarily in the larger bronchi and in their immediate subdivisions, and not in the parenchyma of the lung, is probably ascribable to physical causes." He thinks the continuous movement and the abundant circulation of the parenchyma protect it against carcinoma, as the muscle of the heart and duodenum are protected.

In respect to the opinion regarding metaplasia, one must recall that carcinoma is relatively rarely superimposed on such diseases as bronchiectasis, silicosis, or tuberculosis, in which metaplasia is common and fibrosis a most prominent characteristic. It is well to recall that metaplasia results in the development of a cell that is highly differentiated for a special function (protection) and that dedifferentiation is necessary before carcinoma is developed.

The sigificance of tuberculosis as an etiologic factor requires some consideration. Ewing stated: "The chief etiological factor is tuberculosis. Of Wolf's[3] thirty-one cases, thirteen were associated with tuberculosis. Squamous-cell carcinoma developing in the wall of a tuberculous cavity is described by Schwalbe.[4] Friedlander[4] and Wolf[3] found tuberculous lesions throughout diffuse carcinoma or surrounding tumor masses. In the old scleroses, atelectases, and reparative lesions of tuberculosis, may be found many alterations of bronchial and pulmonary epithelium marked by considerable cellular overgrowth. Oertel points out that the association may be accidental, at other times the two processes exist in symbiosis, while rarely tuberculosis appears to inhibit the carcinoma."

We have not observed a sufficient number of cases in which tuberculosis and carcinoma are both present to know in what respect one disease influences the other. We have not considered it possible to establish any exact relationship, etiologic or otherwise, between them, and have considered the appearance of carcinoma and tuberculosis in the same person as a coincidence. This is simply an expression of opinion; it is not statistical evidence. Pearl,[5] Carlson and Bell,[6] and Fortune have provided statistical evidence which is convincing and conclusive. As a result of their work, it would appear that the evidence from case reports, experimental work and statistics fail to establish any convincing relationship between these two diseases. The fact that healed tuberculosis was found by them with equal frequency in carcinomatous and noncarcinomatous cases, shows that a previous infection with tuberculosis is without bearing on the development of malignancy. Fortune stated: "The position that the person with active tuberculosis is less apt to have malignancy because of immunity to cancer, cannot be substantiated by the statistics presented." In Fortune's and in Pearl's reports, the percentage of active tuberculosis in groups of cases of carcinoma was 5.3 and 6.6, respectively, and of inactive tuberculosis in groups of cases of carcinoma, 24.5 and 28.1, respectively. In their entire series of nonmalignant cases, the incidence of inactive tuberculosis was almost identical. The explanation for the increased percentage of active tuberculosis in the noncarcinomatous control group, seems to depend on the fact that most carcinomas of the lung occur among persons between the ages of forty and sixty years. Patients having active pulmonary tuberculosis do not have carcinoma mainly because they rarely live long enough. Tuberculosis does not create immunity to carcinoma. Ash[3] reviewed necropsy data on persons dying from tuberculosis in a sanitarium, and in 1920 he reported seven cases of primary carcinoma of the lung observed at 551 necropsies. The incidence of the two diseases seems not materially different from that of any other two major diseases, each of which may cause death.

TYPES

All tissue removed during bronchoscopic examination at The Mayo Clinic is referred to a pathologist for diagnosis and grading of the degree of malignancy. Almost all cases are classified under two heads: squamous-cell carcinoma and adenocarcinoma; one of our cases was diagnosed as lymphosarcoma. There were numerous unproved cases in which the pathologist could not find evidence of carcinoma, and the tissue removed was reported to be inflammatory. Later information has been received telling of the progress of the disease or of the death of the patient from carcinoma. These cases are not included in this report. Often the bronchoscopist may not be certain that he has procured a representative specimen, and occasionally he may obtain, at a subsequent examination, a bit of tissue that is more susceptible of diagnosis. Two series of cases from The Mayo Clinic have been reported, one by Vinson, Moersch and Kirklin, and one by Vinson:

Lesion	Vinson, Moersch and Kirklin Per Cent	Vinson Per Cent
Squamous-cell epitheliomas	56	56
Graded 4	35	38
Graded 3	21	18
Adenocarcinomas	35	36
Graded 4	25	16
Graded 3	6	17
Graded 2		1
Graded 1	4	2

It is apparent that primary carcinoma of the lung is highly malignant. Carcinomas graded 4, comprise from 54 to 60 per cent of all cases that were graded, and those graded 3 comprise from 27 to 35 per cent. Of the specimens examined, two were diagnosed carcinoma, graded 4, and one was graded 3, but they were not differentiated as to type of growth. In one case diagnosis of lymphosarcoma was made, and in one, carcinoma could not be graded because of the small amount of the tissue submitted.

It has not seemed to us that there could be any relationship between the squamous type of hyperplastic epithelium found with chronic suppurative diseases and the presence of such a high percentage of squamous-cell epitheliomas. There are two considerations that deter such an expression of opinion: chronic suppurative disease occurs relatively rarely as a precursor of carcinoma, and squamous-cell carcinoma does not require the presence of squamous epithelium for its development. A third consideration has been mentioned with an expression of doubt regarding the probabilities of dedifferentiation of a cell as highly differentiated as the squamous cells found in suppurative disease. We have not included subclassifications, such as mucoid types, because the function of the production of mucus is inherent in the epithelial cell and is rather an expression of function than of variety of cell. We admit the hypothetic conception of possible origin from three sources, the bronchial mucosa, bronchial gland, and alveoli, but with reservations regarding all but the first.

The first objection has just been referred to and has to do with the difficulty of distinguishing carcinomas which are believed to have originated in bronchial epithelium from those believed to have originated from the bronchial mucous glands. We do not believe that any sharp distinction can be drawn, and are inclined to classify all of our growths as simply carcinomas arising from bronchial epithelium. We admit the possibility of origin from the epithelium of the bronchial mucous glands. Simpson and Weller have expressed much the same opinion, Simpson especially pointing out that the polymorphism of the cells usually makes such a division impossible.

The second objection has to deal with the possibility of carcinoma arising from the cells of the alveoli. Eloesser described medullary carcinomas "consisting of small solidly packed cells, closely resembling endotheliomas both in their structure and in their arrangement." He thinks they have nothing in their structure which would indicate that they were of bronchial origin. "They may as well, and probably do, originate in the lung parenchyma. They are rarer, however, than the bronchial carcinomas."

Until the exact origin of alveolar cells is established, a final opinion regarding even the possibility of carcinoma derived from the alveolar cell cannot be entertained. Lemon and Higgins, because of their experimental work, believe that the lining cells of the alveoli are really histiocytes and mesenchymal in origin. In this belief they are in accord with Fried,[2] who not only thinks the alveolar cells are of mesenchymal origin, but denies the presence of transitional epithelium between the epithelium of the bronchiole and the cells of the alveolus. He stated: "The epithelium of the bronchiole ends abruptly and is followed by the 'naked' walls of the air sacs." In regard to the possibilities of carcinoma developing from the alveolar cell, he remarked: "The assertion of the epithelial nature of the alveolar epithelium was also based on the observation that these elements which are inconspicuous in normal tissues 'reclaim' their ancestral features in pathologic conditions, taking a fetal cuboidal aspect. The so-called alveolar-cell cancers of the lung were traced to these structures. In reality the 'glandular structures' observed in sclerosed lung are nothing other than alveoli lined by cells of bronchiolar origin."

In our cases, classification has depended entirely on the appearance of the sections made from tissue removed through the bronchoscope. This evidence is not sufficient to warrant finality with regard to the origin of the peripherally placed carcinoma. Tissue can rarely be obtained from such growths by bronchoscopic manipulation. It may be remarked, however, that in specimens obtained at necropsy, the appearance of the growth was not unlike that defined by Ewing as alveolar-cell carcinoma. These are the

tumors also described by Allen and Smith, who stated: "The air vesicles may be completely filled with masses of cells of cuboidal, cylindrical or squamous form, with obliteration of the visible walls, or they may be filled with papillary projections composed for the most part of cylindrical cells." Weller has been able to find nothing more than presumptive evidence of the alveolar origin of pulmonary carcinoma, and it is Moise's belief that it is usually impossible to determine the exact site of origin, but he is convinced that the evidence points strongly to a derivation from the bronchial epithelium.

We have not convinced ourselves that the alveolar cell is the parent cell, and at present we are not willing to admit that carcinoma can develop from alveolar cells, which we believe are derived from the mesenchyme.

REGIONAL AND SYMPTOMATIC CHARACTERISTICS

It has been customary to classify primary carcinoma of the lung as peripheral or parenchymal, and hilar or bronchial. If it is true that carcinomas may originate in the parenchymal tissue of the lung, such growths should be grouped with peripheral carcinomas. The term peripheral or parenchymal should be employed only as indicative of the situation of the growth, and not as descriptive of its histopathologic character. This manner of classification is simple and aids materially in description, especially that contributed by the roentgenologist.

Peripheral. Peripheral carcinomas are rare and are not formally included in our series because they are almost invariably inaccessible to the bronchoscopist and therefore do not conform to the requirements established; that is, that diagnosis was made from the examination of tissue removed directly from the growth during bronchoscopic examination. Little can be said of them from the standpoint either of symptoms or of clinical signs. Usually there are none. The diagnosis of a lesion becomes dependent, almost always, on examination of roentgenograms. Even such examination, however, is likely to demonstrate a lesion and not to differentiate it as carcinoma, and it is even less likely to classify as a primary growth the lesion believed to be carcinoma.

Cough, bloody expectoration, or a single hemorrhage, pain in the thorax, and the development of metastasis, are the symptoms and signs that may appear, and require roentgenologic examination of the thorax for demonstration of a lesion. Occasionally, we have discovered unsuspected lesions during general examinations or those conducted on patients whose neurologic examination has served to establish a diagnosis of tumor of the brain. Two such cases have come to our attention in the present year.

Bronchial. It has seemed wise to make a composite picture of the patient having bronchial carcinoma. In 61 per cent of cases, the patients are between the ages of forty-six and sixty years, and 66 per cent are men. In 3 per cent of cases, there will be no symptoms, and the diagnosis will be arrived at during general examination, or it will be made on examination for some other complaint. In 97 per cent of cases, cough, loss of weight, bloody expectoration, dyspnea, and pain in the thorax, make up the syndrome. In groups of cases, certain variations in percentage of incidence occur. In the two reports from The Mayo Clinic, the chief symptoms occurred as follows:

Symptoms	First report, per cent	Second report, per cent
Cough	90	84
Bloody sputum	62	60
Dyspnea	54	70
Pain	48	67
Loss of weight	80	87

Although the patient may confine his complaint to one or more of these five major symptoms, yet these may be combined with a syndrome appearing less frequently, which, however, must be recognized as part of the symptomatic picture. The frequency of appearance of symptoms is as follows: hoarseness or fatigue in speech, 7 per cent; fever, 54 per cent; and chill, 14 per cent.

During the course of the examination certain signs appear with sufficient regularity to earn for themselves a place in the picture of bronchial carcinoma. Of these signs, bronchostenosis takes first place. It was found in 66 per cent of our cases, either producing simple atelectasis or promoting suppurative sequelae which, in order of frequency, were grouped as bronchiectasis, abscess, or empyema. It is mainly in the cases of bronchostenosis that fever, chills, anemia, and leukocytosis appeared. These symptoms, however, may occur in ulcerating lesions without demonstrable stenosis. Secondary anemia with the estimation of hemoglobin under 65 per cent, occurred in 34 per cent, and more than 10,000 leukocytes occurred in 40 per cent. Stridor due to stenosis produced by a lesion situated below the bifurcation, occurred in 33 per cent, and changes in the voice, the result of injury of one of the recurrent laryngeal nerves, in 7 per cent. Pleural effusion occurred in

only 10 per cent of the group; this percentage is probably too low, but perhaps no lower than the percentage of complications mentioned. We were not able to observe our patients throughout the course of their illnesses from onset to death, and have attempted to describe the patient who is still ambulatory. At later stages of the illness, complications become increasingly frequent. The character of the pleural effusion may be serous, serosanguineous, or frankly purulent. It may then be indistinguishable from the fluid resulting from tuberculous pleuritis or from postpneumonic empyema. It may be sterile or contain pus-producing organisms. Usualy it is a fluid which develops rapidly, often as a late complication, and contains only a few cellular elements. On rare occasions it may contain carcinoma cells. Rust and Randolph made a diagnosis of carcinoma by finding carcinoma cells in the effusion. Usually effusions are bloody accumulate rapidly after being aspirated, and each time become more and more distinctly bloody, until in time they resemble pure blood. Withdrawal of fluid does not relieve dyspnea or pain. Often it serves to demonstrate a tumor in the roentgenogram taken following aspiration, since it is then posible to visualize the hilar areas.

ROENTGENOLOGIC CHARACTERISTICS

In the revelation and identification of primary bronchial carcinoma, the roentgenologic examination is capable of rendering a threefold service: (1) by definitely demonstrating the existence of a pulmonary lesion; (2) by directing the clinician's attention in certain cases to the possibility that the lesion is bronchial carcinoma, thus stimulating further cooperative investigation, and (3) by making in most instances a specific diagnosis, the positiveness of which will necessarily vary with the frankness of the signs and the experience of the roentgenologist.

Almost implicit reliance can be placed on the roentgen rays to demonstrate a lesion. At the clinic, 97 per cent of the cases have presented definite evidence of pulmonary disease, and not rarely when the clinical manifestations are trivial, vague, or even absent. At least this contribution to the diagnosis can rather confidently be expected from the roentgenologist. How much further he can carry his interpretation obviously depends on the size of the primary growth, the emphasis and character of secondary roentgenologic phenomena, and the nature and extent of ensuing complications.

Roentgenologically, the cases may be divided into three groups: (1) in which the growth is too small to cast a discernible shadow but obstructs the bronchus and is exhibited only in the resulting atelectasis or bronchiectasis; (2) in which the shadow of the growth is plainly visible, and the obstructive phenomena or complications are obviously subordinate, and (3) in which complicating pathologic factors dominate the picture or conceal the primary lesion.

The first group comprises the early cases, and probably their earliest manifestation is localized atelectasis. This appears as a gauze-like shadow which extends more or less fan-like from the hilum toward the periphery of the lung and is of such slight density that the bronchovascular markings can be seen through it. Often an elevation of the corresponding arch of the diaphragm is associated with it and the heart and mediastinal structures may be displaced toward the affected side. If the bronchostenosis caused by the carcinoma has existed for a considerable time, bronchiectasis, with its characteristic mottled shadow, is likely to occur, and rarely this may be the sole discoverable sign. It is patent that neither atelectasis nor bronchiectasis is diagnostic of bronchial carcinoma, but they are commonly significant of bronchial obstruction, the cause of which must be sought. Only by bronchoscopy, with or without biopsy, can the cause be determined, and the roentgenologist should recommend this procedure, especially if there are indefinable features which suggest that the obstruction may be due either to a foreign body or to bronchial carcinoma.

In the second group, which is fairly large, the shadow of the carcinoma itself is manifest. Varying in size in proportion to the size of the growth, the shadow is centered on and occupies the entire hilum, and is seen in the sixth or seventh interspace posteriorly. It is roughly triangular, with its apex directed outward. Its outer border is not clear cut, but extends strand-like along the bronchovascular markings. With it may be associated bronchiectasis or atelectasis. There may also be a few metastatic nodules in the opposite lung, and the shadow of pleural effusion in small or moderate amount may be evident. The entire picture, the central feature of which is the shadow at the hilum, is almost pathognomonic.

The third group, which includes advanced cases with extensive complications, offers many difficulties in diagnosis. There are varied combinations of a mass at the hilum, atelectasis, bronchiectasis, abscesses or abscess cavities, metastasis, and pleural fluid. Often the picture is so complex that diagnostic analysis seems impossible. Usually a key to its solution will be found in the hilar mass, which, large or small, is focused on the hilum. If metastasis is so

widespread that it seems to have come from extrathoracic sources, as ordinarily, the unwonted shadow at the root of the lung should prevent any hasty conclusions. If the entire lung or its affected portion is hidden by pleural effusion, the roentgenologist should insist on reexamination after paracentesis and should give special attention to the hilar region.

Possible difficulties in the differential roentgenologic diagnosis of bronchial carcinoma are almost innumerable. The condition can be confounded with the lymphadenopathies or any of the diseases that affect the mediastinal organs, or with benign tumors, abscesses, pneumonia, or tuberculosis. But probably the greatest obstacle to diagnosis is failure to think of bronchial carcinoma.

The roentgenologist only can discover the true peripheral primary carcinoma, which must be distinguished from a single metastatic carcinoma growing at a distance from the hilum. A single discrete peripheral tumor is almost impossible to identify clinically or roentgenographically with uniform correctness. In our clinical experience, such single discrete tumors within the parenchyma of the lung, discovered by roentgen rays, ultimately have proved to represent not only primary carcinoma, but also a tuberculous lesion, a conglomerate mass of fibrous tissue produced by silicosis, a discrete abscess, and metastasis from carcinoma elsewhere in the body. Rarely, such a discrete tumor may be a benign growth.

The roentgenologic characteristics of a single peripheral primary carcinoma serve to distinguish it from secondary forms of metastatic growths. The primary carcinoma is usually a single growth of homogeneous density, situated at a distance from the hilum and intimately associated with the parenchyma of the lung by means of its infiltrating surface. This undifferentiation of surface from the lung, roentgenographically, gives its shadow an ill-defined border. In contradistinction, the metastatic carcinoma is usually multiple, situated anywhere within the parenchyma of either or both lungs and its shadow usually has a discrete smooth outline, showing the absence of infiltrating characteristics. If the peripheral carcinoma of primary type becomes necrotic centrally, its appearance may be indistinguishable from an abscess, and when it grows toward the hilum, it may infiltrate the hilar and peribronchial areas to such an extent as to be indistinguishable from carcinomas arising within the large bronchi.

BRONCHOSCOPIC CHARACTERISTICS

The appearance of a bronchial carcinoma is in no essential sense different from carcinoma elsewhere. The direct observation of bronchial carcinoma is simply attended with greater difficulties. To the trained bronchoscopist such technical difficulties may be overcome. If the growth is accessible, he is able to see and to examine the intrabronchial lesion. If the lesion is carcinoma it usually is fungating and ulcerating, and more or less completely occupies the lumen of the bronchus. In most cases it arises in one or the other of the main bronchial divisions and frequently it encroaches on the lumen of the trachea, not infrequently pushing upward beyond the carina.

Occasionally, the lesion is a flat, infiltrating mass proceeding toward the periphery. It may not be ulcerative, but it usually bleeds during instrumental investigation. Like all carcinomas, however, it invades the bronchial wall, thickening it, producing stiffness, and inhibiting the normal movements that occur during respiration.

The appearance of the lesion serves to distinguish it from that induced by tuberculosis involving the hilar regions. Tuberculosis rarely causes stenosis of a large bronchus. It rarely causes the secondary effects of reduction in the size of the lumen, bronchostenosis and the attending sequelae, atelectasis, bronchiectasis, or abscess. When these conditions are known to be present, they have features which distinguish their tuberculous etiology. Their identity is rarely confused with similar lesions resulting from bronchial carcinoma. It is fortunate that the two conditions do not more exactly simulate each other. Bronchoscopic examination should be reserved for the few cases in which the etiologic factor cannot be discovered otherwise. It should not be made in cases of frank active tuberculosis and is less imperative in cases of hilar tuberculosis when the nature of the hilar lesion can be determined by other methods, for example, biopsy of regional lymph nodes or the examination of pleural exudates. In cases such as those that constitute 3 per cent of our series, in which the two major diseases, tuberculosis and carcinoma, are associated, bronchoscopic examination may be required and may be approached with little timidity if the tuberculous lesion is fibrous or calcareous.

Bronchoscopic examination lends itself well to the diagnosis of those forms of benign tumors whose symptoms and signs may closely simulate those of carcinoma. Such tumors, recently described by Wessler and Rabin, include adenomas, fibromas, fibrolipomas, and polyps, and to these may be added those malignant polypoid tumors that may be encountered, and are the only malignant growths known to us that can be removed through a bronchoscope. The presence of such tumors, in each case

in our experience, was suggested by a hemorrhage of unknown cause. More unusual was the presence in one case of a dermoid which gave the appearance, symptoms, and signs of a malignant tumor with the exception of the characteristic shadow in the roentgenogram. It was removed by repeated coagulation.

The visualization of a lesion, the removal of tissue for histopathologic diagnosis, the removal of a polypoid growth, or the coagulation of benign growths that cannot be removed, are not the only purpose of bronchoscopic examination. Carcinomatous-like lesions produced by foreign bodies, such as bone, or calcareous material, or true stone in the lung, can be distinguished from carcinoma. In these ways, the examination complements and completes the clinical survey of intrabronchial lesions and makes a diagnosis possible without the involvement of serious risk.

TREATMENT

Reference has been made to the removal of tumors through the bronchoscope. This method is obviously confined to small lesions of papillomatous type and not to the infiltrating growths. It is impossible to remove such tumors by bronchoscopic methods. Green[7], Orton[7], and Jackson[9] reported the removal of malignant intrabronchial tumors, and Wessler and Rabin reported the removal of benign growths.

If a diagnosis of primary carcinoma could be made with any certainty on those isolated, single, peripherally placed tumors, surgical intervention would hold out a reasonable prospect of cure to make the procedure permissible. But these tumors are rarely found by clinical methods, and they are inaccessible to bronchoscopic observation. Lesions of this type are produced by a varied number of pathologic conditions, so that operative procedures have as yet received little popular support. In considering the surgical treatment of pulmonary carcinoma, Eloesser stated: "Central parenchymatous tumors hide themselves completely from inspection, percussion or auscultation. This is unfortunate. The removable tumors give no signs of their presence; it is the stricturing ones situated near the hilum, whose location makes them inoperable from the beginning, or the complicated ones with secondary bronchiectasis and abscesses, that we can recognize clinically. An unpromising outlook."

When a diagnosis of a hilar growth is made, the outlook from the surgical viewpoint is indeed discouraging. It is true, from reports, that successful removal has been accomplished and that various surgical procedures are recommended. These have been considered by Sauerbruch[4], Brunn, Eloesser, Meyer, Lilienthal[4], Allen and Smith, and others, but at present the record of cures is pitifully small.

We have not employed surgical procedures in treatment. We believe that the inaccessibility of the growth, its high degree of malignancy, and the probability of metastasis, and the situation in the main bronchus, would require procedures accompanied by a prohibitive mortality.

Treatment by means of the implantation of radium directly into the tumor, using the bronchoscopic approach, has been employed within the last ten years. Yankauer,[7] in 1921, treated a patient by this method, and two years later, Greene[7] used the same procedure. Moersch has used the method in two particularly suitable cases in this series. Kernan and Cracovaner have combined the radium with frequent applications of surgical diathermy.

PROGNOSIS

The time of onset of the disease is so indefinite that it is difficult to estimate its duration. It would seem probable that most patients live approximately one year after recognition of the disease. In Vinson's report[14 15] of cases in which radium or roentgen-ray treatment was employed exclusively, a certain degree of encouragement is permissible. Although thirty of fifty-four patients treated in this manner lived only six and a half months, yet ten were alive, much improved or well, after fifteen months, and two lived more than three years. One is alive and well after four years since the beginning of roentgen-ray treatment. Vinson's records since the last publication add to our enthusiasm for the employment of roentgen treatment. There is little doubt that patients so treated outlive by many months those who are untreated.

There is hope of changing the present gloomy prospect of cure. It lies in improvement of technic with radium, roentgen rays, and operative procedures.

BIBLIOGRAPHY

1. Allen, C. F.; and Smith, I. S.: Primary carcinoma of the lung with a report of a case treated by operation. Tr. Am. Climat. and Clin. Assn. 47: 201-220, 1931.
2. Brunn, Harold: Primary carcinoma of the lung: report of two operative cases. Arch. Surg. 12: 406-436 (Jan.) 1926.
3. Eloesser, Leo: Primary tumors of the lung. Arch. Surg. 10: 445-468 (Jan.) 1925.
4. Ewing, James: Neoplastic diseases. Ed. 3, Philadelphia, Saunders, 1928, 851-861.
5. Fortune, C. H.: A statistical study of the coincidence of malignancy and tuberculosis. Ann. Int. Med. 3: 495-500 (Nov.) 1929.
6. Habliston, C. C.: Intrathoracic malignancy. Tr. Am. Climat. and Clin. Assn. 47: 221-233, 1931.
7. Kernan, J. D.; and Cracovaner, A. J.: Carcinoma of the lung. Arch. Surg. 18: 315-321 (Jan.) 1929.
8. Lemon, W. S.; and Higgins, G. M.: Plumonary

fibrosis: experiments of short duration. Am. Jour. Med. Sc. 183: 153-164 (Fed.) 1932.
9. Meyer, Willy: Primary cancer of the lung. Arch. Surg. 18: 307-314 (Pt. 2. Jan.) 1929.
10. Moise, T. S.: Primary carcinoma of the lungs. Arch. Int. Med. 28: 733-772 (Dec.) 1921.
11. Rosahn, P. D.: The incidence of primary carcinoma of the lung. Am. Jour. Med. Sc. 179: 803-811 (June) 1930.
12. Rusk, G. Y.; and Randolph, V.: Anatomic findings in cases simulating pulmonary tuberculosis. Jour. Am. Med. Assn. 82: 442-447 (Feb. 9) 1924.
13. Simpson, S. L.: Primary carcinoma of the lung. Quart. Jour. Med. 22: 413-449 (Apr.) 1929.
14. Vinson, P. P.: Treatment of primary carcinoma of the bronchus by radium and roentgen ray: report of a case. Proc. Staff Meetings of Mayo Clinic. 6: 145-147 (Mar. 11) 1931.
15. Vinson, P. P.: Primary carcinoma of the bronchus: report of seventy-one cases in which the diagnosis was made by bronchoscopic examination. Minnesota Med. 15: 15-17 (Jan.) 1932.
16. Vinson, P. P.; Moersch, H. J.; and Kirklin, B. R.: Value of bronchoscopy in the diagnosis of malignant conditions of the lungs. Jour. Am. Med. Assn. 91: 1439-1442 (Nov. 10) 1928.
17. Weller, C. V.: Primary carcinoma of the larger bronchi: an analysis of ninety cases with regard to pathology, symptomatology and diagnosis, and report of a new case. Arch. Int. Med. 11: 314-333 (March) 1913.
The pathology of primary carcinoma of the lung. Arch. Path. 7: 478-519 (March) 1929.
Entdifferentiation in primary carcinoma of the bronchi and lungs. Jour. Cancer Res. 13: 218-238 (Oct.) 1929.
The pathology of certain signs and symptoms in primary carcinoma of the lung: illustrative cases. Ann. Int. Med. 2: 725-746 (Feb.) 1929.
18. Wessler, H.; and Rabin, C. B.: Benign tumors of the bronchus. Am. Jour. Med. Sc. 183: 164-180 (Feb.) 1932.

MANAGEMENT OF CANCER OF THE BREAST

ALBERT SOILAND, M. D.
Los Angeles, Calif.

(Read before the New Mexico Medical Society, at its Fiftieth Annual Meeting, held at Santa Fe, N. M., May 19-21, 1932.)

Considerable interest is manifest in the treatment of primary cancer of the breast by means of platinum-covered radium-element needles. For many years it has been observed that, when radium is used interstitially, a more intense action occurs than when a like amount of radium is employed upon a surface growth. It has also been observed that interstitial radiation produces a less severe reaction upon normal tissue cells. Despite this advantage, however, there was too much necrosis with implanted radium, until a few years ago, when metallic platinum was substituted for the baser metals as a covering filter, and we are now able to radiate freely within certain known limits.

For breast cancer we employ needles varying in length from one to six centimeters, and in thickness from two to three millimeters. Each needle contains from one to four milligrams of radium element, determined by length, and these needles are plunged into the tissues surrounding the tumor, in positions which will place all malignant-cell-bearing areas under a direct crossfire. If we are dealing with a radiosensitive malignant mass, a definite clinical cure may be expected from this method of treatment. Unfortunately, this much-to-be-desired result is still a probationary one. As yet, no medium has been found which gives positive diagnostic assurance of conditions extending beyond the obvious mass in the breast. In the absence of palpable nodes, we have no definite knowledge as to the ramifications and extent of the wandering metastatic cells. It is true that we may be so fortunate as to have only a primary growth, in which case either a simple mastectomy or radiation will effect a clinical cure. We must, however, abide by the time factor to verify our diagnosis in such an instance; even the most careful pathologist cannot be certain from the specimen examined whether or not a few cells may have escaped beyond the evanescent capsular zone of the neoplasm. Again, while the average breast cancer has been found to be radiosensitive, there are many wherein definite cancer-cell colonies are not killed by radiation and, in such cases, a clinical cure is impossible.

Another factor to be reckoned with is the mechanical one—the skill and knowledge required to place all radium needles in position which will insure the destruction of the scattering invaders as well as the parent growth. With this problem we are now intensely concerned; feeling that there is a great deal yet to be learned, particularly with regard to the technic. However, our relatively limited experience with interstitial radiation in breast cancer does not warrant thoroughly positive conclusions, and we are convinced that we cannot and must not relinquish surgery. Should time prove that the method under discussion offers more five-year clinical cures than the best and most modern surgical skill, conclusions will then be obvious.

There is still considerable skepticism as to the value of radiation in the breast, and I admit that this is a reasonably debatable point. A leading surgeon in the East has called our attention, through personal correspondence, to the fact that small cancer-cell groups detached from the parent group are not always within the lethal firing line of radiation, and

supports his observations with slides showing active cancer cells in such a field. Rightfully, he raises the question as to choice of treatment under these circumstances, but, on the other hand, anyone who has seen the epochal motion film of cancer cells in vitro, bombarded and killed by radium, as demonstrated by Canti of Cambridge, cannot help being convinced of the rationale of radiation therapy. The responsibility of the radiologist, however, is no greater than that of the surgeon, for surely more surgical operations are performed by unfinished surgeons on inoperable cancer of the breast than there are patients with operable breast conditions treated by ignorant radiologists. The best results will always be achieved when the clinician, the surgeon, the pathologist, and the radiologist combine their clinical knowledge at the bedside of the patient.

Referring again to my viewpoint of breast-cancer treatment based upon our most recent experience, it must be remembered that radium implantation is strictly a surgical procedure and is quite frequently combined with frank surgery. Obviously, every patient with a node or mass in the breast must be studied and then treated in accordance with our best judgment. Every patient with a breast lesion or tumor, irrespective of whether it is primary, secondary, or hopelessly inoperable, is subjected to a saturation dose of extreme short-wave x-rays. After all x-ray and lymph edema has subsided, which takes approximately fourteen days after the last treatment, a careful group examination and consultation is conducted. If we have been treating a mastitis, with or without inflammatory glands, no pathology will be found. The same is true with some cases of early carcinoma, but such patients are required to report every three weeks until we are satisfied that the expected results have been attained. With a primary carcinoma, however, there usually remains some remnant of the tumor after the x-ray treatments, and these patients are advised to have radium implantation.

The mass is then measured and, if there is no skin involvement and there are no palpable nodes, a sufficient number of needles are plunged in a manner to completely encircle and encompass the growth, bearing in mind that it requires approximately one milligram of properly screened radium to completely destroy all malignant growth within one square centimeter of tissue over a definitely fixed time period. This is usually accomplished in from seven to ten days, depending on the radio-responsive nature of the cancer cells. Part of this treatment consists of blocking all lymphatic channels leading from the breast, by additional radium needles, and, in the presence of palpable nodes, the implantation is carried on to the limit of safety permitted in the presence of the larger vessels, nerves, and bone structures. In the primary group cases, just described, we do not recommend subsequent surgical removal, although we are aware that this is customary in some of the better-known clinics. If we are not satisfied with the progress of a radium-implanted breast after a few months' observation, a further implantation treatment can easily be given.

Our second large group with extensive infiltration, skin involvement, and ulceration is subjected to a mastectomy, by means of the radiotherm, after the x-ray reaction has subsided, and all necrotic metastatic nodes are removed at the same time. Following this, the radium implantation completes the operation in the manner already described.

In our third and largest group—the secondary and recurrent cases—we have little to offer by interstitial radiation. It is gratifying to find that patients of this character often show remarkable palliative results frdm short-wave radiation, using either the radium pack or high-voltage x-rays.

It is to be sincerely hoped that the research work now going on in different parts of the world, particularly that directed towards super-short-wave x-ray generation, will before long place in our hands a powerful weapon of offense, increasing our usefulness and adding to our success in the battle against mankind's unrelenting enemy—cancer.

THE OBJECT OF THE CANCER COMMISSION

C. G. TOLAND, M. D.
Los Angeles, Cal.

(Read before the Fiftieth Annual Meeting of the New Mexico State Medical Association, at Santa Fe, May 20, 1932.)

The menace of cancer has never been more acute than at the present time. It recently has jumped from sixth to second place as a cause of death in the United States and its apparent yearly incidence has increased by two per cent. Never has there been a more concerted and united attempt, on the part of layman and physician alike, to control cancer, than today.

Propaganda and publicity have brought to the attention of the people at large the necessity for immediate investigation of suspicious lesions. The laborers in cancer research are unceasing in their at-

tempt to determine the cause of cancer but, in spite of their brilliant and tireless efforts, we still must rely on the individual physician and his ability to recognize cancer early.

We are seeing more people with early cancer than before, but we also are seeing more people with hopelessly advanced cancer.

Either cancer is undeniably on the increase, or the patient with cancer is waiting too long before appearing for examination, or, lastly, we as physicians are overlooking many of the earlier cancerous lesions.

The scope of cancer control is national in extent. National organizations for the control of cancer are functioning efficiently in the education of the public. Locally, however, it becomes the duty of the state medical society to arouse the individual physician to a sense of his duty and responsibility concerning the early diagnosis and treatment of cancer, and also to reach some common ground of agreement regarding the criteria for such diagnosis and treatment.

It was such a desire on the part of the California Medical Association that led to the formation of the cancer commission. It was created by the house of delegates at the 1931 meeting, through the suggestion of Dr. Lyell Kinney, the retiring President. It was a serious effort by the California Medical Association to control the present cancer mortality. The Commission was appointed by the President, Dr. Junius B. Harris, and consists of two pathologists, five surgeons, and two radiologists. These men are responsible for the policies and conduct of the commission, but the actual work is carried on by various committees.

In the resolution adopted for the establishment of the Commission, three main purposes were outlined: First, the education of the medical profession in the early diagnosis of cancer; second, the provision of more adequate facilities for the diagnosis and treatment of cancer patients; third, the encouragement of cancer research on the nature, cause, behavior and treatment of cancer.

Regarding the last point, it should be understood that the cancer commission has no intention of undertaking any type of cancer research, for that involves millions of dollars of endowment and a large teaching organization. They do intend to stimulate and encourage scientific research and to coordinate that research for the practical use of the profession.

It was believed that the combined judgment and experience of the members dealing with cancer in California should constitute the basis for all criteria of diagnosis and treatment. To this end, a committee on professional information and medical education was assembled, consisting of a large group of surgeons, pathologists, radiologists, internists, and other specialists. This group was divided into subcommittees to consider the various types and locations of cancer. In its particular field, each committee is conducting a survey of the early symptomatology, correct methods of diagnosis, and adequate treatment. The work has evoked enthusiastic cooperation and serious efforts by a large number of men throughout the state. Questionnaires have been sent out to different members for the purpose of determining different opinions regarding diagnosis and treatment.

These committees are rapidly crystallizing and assembling the data which shall soon be available to every physician in California. Some of the reports are already in the hands of the Commission.

The next object of the Commission is to make this information available to every physician in California. Another group of members has been assembled to form committees on extension courses, both in northern and southern parts of the State. The program includes lectures, conferences, and clinics, throughout the State, also yearly meetings with all of the county medical societies.

The information from the Commission will be broadcast through California and Western Medicine and special bulletins. Further clinical conferences and exhibits are planned at state meetings. This year Dr. Robert Greenough, chairman of the Malignancy Committee of the American College of Surgeons, was the guest speaker.

Thus the Cancer Commission has inaugurated a program of professional education, better to prepare members of the California Medical Association in the early diagnosis of cancer. When this project has attained sufficient momentum, the Commisssion, with the direction of the Council, will attack the problems of better facilities for the treatment of cancer and of education of the public.

I have brought this short report to you because much has been accomplished this year by the various committees. We have discovered many thinking men in the State who have already done a great deal toward the education of their own clientele in the recognition of suspicious lesions and suspicious symptoms in different parts of the body. Such education brings the patient very early to his physician. Second, I feel that your State Association might be greatly interested in an organization of this type.

It is not extremely expensive to organize and conduct such a Cancer Commission. The Council of

the California Medical Association allowed the Cancer Commission $4500.00 last year. This Commission spent $1500.00, and again this year the Council allowed our budget to be made up to the $4500.00.

We have a full-time secretary and, for the headquarters of the Cancer Commission, we have been given space in the main office of the California Medical Association, in San Francisco; so you see there has been great cooperation all the way through, simply because all of our members are very anxious to have in their possession the correlated facts about cancer and its treatment. Also, not a single member has been asked for any personal donation to carry on the work. They know that we are not trying, as an association, to conduct any impracticable experimental work, and are interested purely in useful clinical truths.

There are about four states in the Union that have such a commission appointed by the State Medical Society.

It is imperative, in a commission of this type formed by any state medical associatoin, that the executive committee be composed of men who are very much interested and who are especially adapted for such work.

We have been very fortunate in this respect. Dr. Charles A. Dukes, of Oakland, Dr. Alson R. Kilgore, of San Francisco, and Dr. Henry J. Ullmann, of Santa Barbara, California, have unselfishly given their time until at present our Commission is in full swing.

I wish to show the type of questionnaire sent to the various committees. I would also like to read to you a few paragraphs from the report, of the committee on Gynecological Malignant Tumors, given at the last meeting of the California Medical Association in Pasadena. I have had permission to present this study to you by the Executive Committee of the Cancer Commission of the California Medical Association, hoping that your Association may become interested. I am pleased to be allowed to present this subject before you. The outstanding fact has been the marvelous cooperation we have had from the members of the California Medical Association in carrying on this study. We believe there will be a distinct progress toward the reduction of cancer mortality wherever such a commission functions.

QUESTIONNAIRE FOR COMMITTEE ON GYNECOLOGICAL MALIGNANT TUMORS

CANCERS OF UTERUS

Prevention:

Do irritant lesions predispose, such as:

1. Retention cysts.
2. Erosions.
3. Scar tissue.

What corpus lesions predispose?

Would you treat erosions in young unmarried women?

How should lesions one and two be treated?

Cautery (What methods are to be advised?)

Surgery (Amputation)
(Sturmdorf)
(Other methods)

Is there validity in the advice to wait till child-bearing period is ended?

Have you seen carcinoma of cervix follow adequate treatment by cautery or plastic of cervical lesions?

Should all cervices be examined and repaired at time of parturition?

In hysterectomies for benign growths should the cervix be left?

In the nulliparous?

In the parous?

Only when cervix lesions of potential malignancy importance can be excluded?

Can they ever be excluded in the parous women?

If the cervix is not removed should its mucosa receive special treatment, such as coning it out from above or below (with knife? with cautery?)

Should that apply in both parous and nulliparous women?

DIAGNOSIS

At what age should periodic examination be advised?

What should be the scope and character of such examinations?

What are the indications of diagnostic curettage?

Is frozen section diagnosis permissible? Is it ever proper to wait for other methods of tissue examination or should treatment be carried out at the same seance?

TREATMENT

Class 1. Of cancer limited to cervix.

Class 2. Infiltrating uterine body or vaginal walls.

Class 3. Invading parametria.

Class 4. Involving in addition to parametria, the iliac and other glands.

Class 5. Adenocarcinoma of corpus.

In what classes is surgery indicated?

A. Complete pelvic dissection (Wertheim).

B. How would you treat corpus carcinoma—simple hysterectomy, subtotal, pan, Wertheim or vaginal?

Is the recent suggestion that subtotal be done, leaving the cervix for future radium implantation, to be considered?

C. Cautery (in what class of cases?)

D. Cautery plus hysterectomy?

E. Surgery (knife or cautery) plus roentgen deep therapy? Before? After? Both?

F. In what classes is radium indicated before

or after any of the surgical methods? Dosage?

Is the grading of curettings of value in the determination of treatment?

In what classes is radium indicated as the main treatment and how should it be used?

A. Regaud, long application of small doses, 5000 to 10,000 mg. hours.

B. Stockholm method, three applications completed in one month, about 7000 mg. hours, in all.

C. Describe a better method, if any.

D. Is roentgen radiation alone ever indicated?

The Committee should make some recommendation regarding chorionepithelioma.

PREVENTION

Should radium be used after removal of hydatidiform mole (T. J. Watkins)? Dosage?

How should recurrence of bleeding following removal or expulsion of mole be treated?

Has thorough curettage after abortions any prophylactic value?

If bleeding recurs a few weeks after such curettage should the operation be repeated for biopsy?

Are there any findings at this stage, such as the arrangement of or large groupings of Langhans' and syncytial cells, in the absence of definite new growths, which warrant hysterectomy?

Would the presence of bilateral ovarian cysts influence your judgment and treatment of uterine hemorrhage associated with fetal cells in the uterus?

OVARIAN TUMORS

Diagnosis:—

Do you regard proliferatig ovarian cysts as potentially malignant?

Do you advise expectant treatment of ovarian cysts or tumors which are not causing symptoms?

In the presence of papillary serous cyst involving one ovary, do you?

1. Remove involved ovary?
2. Remove both ovaries?
3. Remove both ovaries plus hysterectomy?

How do you treat peritoneal transplants from such tumors?

1. No treatment?
2. Cautery knife?
3. Dissection of transplants?
4. Postoperative radiation or deep x-ray? ?

OVARIAN CANCERS

Outline treatment of ovarian cancer without evidence of metastasis (conservative or radical removal).

Outline treatment of ovarian cancer with metastasis, i. e.,

1. Removal of primary tumor completely.
2. Removal of primary tumor incompletely.
3. Radiotherapy.

Do you consider that the recovery of hyperplastic endometrium, secured by diagnostic curettage for bleeding, in a woman long past the menopause, is indicative of an ovarian neoplasm?

VAGINAL NEOPLASMS

Do you regard pruritus vulvae, kraurosis vulvae, leukoplakia vulvae, senile vaginitis, as precursors of vulval or vaginal neoplasms?

How do you treat these conditions? x-ray or radium? ovarian extracts? resection of involved tissues?

Vaginal or vulval carcinoma.

Treatment:

Local removal followed by deep x-ray or radium?

Wide resection and superficial and deep lymph gland dissection?

Radiotherapy—technic?

GYNECOLOGICAL TUMORS COMMITTEE

(To include the vulva)

1. Symptoms suggesting cancer, e. g., character of bleeding and discharge, etc.

2. Pre-cancerous conditions — treatment — adequate care after childbirth as a prophylactic, e. g., cervical repair.

3. Diagnosis—biopsy and curettage (value of, safety, under what circumstance justified).

4. Radiation vs. surgery in cervix and corpus cancers—extent of operation—indication for radiation (is radiation to be accepted as procedure of choice in cervix cases?)

Is hysterectomy the best treatment in all corpus cases? i. e., is the grading of curettings of value in the determination of treatment?

5. Radiation— dosage— screening placement— is burying needles or radium seeds into the cervix acceptable?

6. Ovarine tumors—classification of cysts—extent of operation—radiotherapy—question of leaving uterus as a holder for radium (Heyman, Stockholm).

7. Relation of fibroids to malignancy.

8. Vulva and vagina—pre-cancerous conditions—kraurosis, senile vaginitis—treatment—lymph-gland dissections? Radiotherapy—when indicated—technic?

FROM REPORT OF COMMITTEE ON GYNECOLOGIC TUMORS.

Cancer of the cervix naturally presents itself for first consideration.

The discussion centers upon the lesions popularly known as erosion of the cervix. Strictly, there is no erosion in the sense of tissue loss, at least not at the time it usually presents itself for treatment. In its inception there probably was loss of epithelium in the infected area in the vicinity of the parturition wound or other agency which caused it, followed by growth outward and over this denuded surface of the gland-bearing columnar-cell epithelium of the cervical canal.

This glandular and epithelial hyperplasia, called erosion, merits a name more in keeping with its histo-pathologic character. Eden and Lockyer propose to call it proliferative adenoma of cervix and Bailey suggests perioricular cervicitis.

It is always inflammatory in origin, usually through birth injuries in the parous and through

mechanical agencies in the nulliparous. A few exceptions occur in virgins, and they are possibly congenital due to failure of the columnar epithelia to recede within the external os.

Erosions occur in 75 per cent of parous women and in 25 per cent of the nulliparous.

Retention cysts are usually ascribed to attempts at healing, that is, the replacement of the columnar epithelium with normal squamous epithelium, which often obliterates the gland openings. The columnar epithelium seems originally to be sent out as more capable of coping with the inflammatory irritation. When it succeeds and the round-cell, irritative, subepithelial infiltration recedes, return to normal takes place, the red columnar epithelium being replaced by the squamous-cell variety.

Your Committee stresses birth injuries as the important first event in the sequence toward cancer, and erosion as the stepping stone to be destroyed.

Ninety-seven per cent of the cancers of the cervix occur in parous women, all of whom have had cervix injuries, as a matter of course. The other three per cent probably occur in those nulliparous women with cervix erosions of infectious origin. The evident lesson is, first, that all cervices should be examined at time of parturition, and routinely repaired; second, that all erosions in both the parous and nulliparous should be treated until replaced by normal squamous epithelium (Boller, Costolow, Craig, Depuy, Dukes, Eder, Enge, Ewer, Graham, Maxwell). The methods recommended by committee members are cauterization or plastic repair. The first is applicable in mild cases and can be carried out as an office procedure. Usually, linear strokes with a nasal platinum loop are effective. These are to be repeated monthly till cure is complete. Plastic repair of the Sturmdorf type is recommended for the severe cases, particularly at the menopausal age.

That these cervix lesions may be discovered, your Committee advises complete gynecologic examinations yearly after marriage, and after thirty in all.

This education of the public must be carried on by physicians among their clientele, if the profession is going to meet its urgent obligation in this intensely important matter of cancer prevention.

Cancer of the cervix after subtotals: Cancer of the cervix stump left at subtotal hysterectomies occurs often enough to warrant consideration. Some of our members do panhysterectomies for growths when the woman is parous, upon the assumption that her cervix, having been wounded, is always vulnerable (Eder, Ewer, Maxwell). However, if it is agreed that erosion is the great etiologic factor, it seems reasonable to leave a cervix free from that lesion and not otherwise badly damaged (Boller, Costolow, Craig, DePuy, Dukes, Enge, Evans, Graham, Schaupp, Tollefson). To be safe, it is suggested that the cervical mucosa, including that of the portio immediately surrounding the external os, be destroyed (Boller, Ewer, Graham, Maxwell). This is satisfactorily done by cauterizing the lower part of the canal and coning out the upper part with the knife.

Diagnositc curettage: The opinion prevails in some quarters that corpus cancer is relatively rare, less than 5 per cent of the total of uterine malignancies. Members of this committee report from their experience 15 to 30 per cent (Costolow, Eder, Ewer). This indicates the necessity of curettage for biopsy in an irregular idiopathic bleeding, especially after the age of forty. All members subscribe to this. Treatment should be carried out preferably at the same seance after frozen section examination, or as soon as satisfactory tissue identification can be made.

Treatment: For discussion of treatment, cancers of the uterus were divided in the questionnaire into five classes based upon the parts involved.

Class 1. Cancer limited to the cervix.
Class 2. Infiltrating uterine body or vaginal walls.
Class 3. Invading parametrium.
Class 4. Involving, in addition to parametrium, the iliac and other glands.
Class 5. Adenocarcinoma of corpus.

The Committee is nearly unanimous in its opinion that the Wertheim panhysterectomy, if used at all, should be limited to cases in classes 1 and 5, but there is a majority opinion against the procedure and in favor of radium and deep x-ray in class 1.

In class 5, there is a feeling that panhysterectomy is sufficient, without dissection of the parametrium, and that, if there is any pericervical infiltration, the case should be handled with radium and deep x-ray. Surgery has been so successful in this class of corpus cancer that the Committee is slow to advise any change to radium and x-ray, but it must be admitted that these agents are also very reliable and can be used with much confidence when surgery is contraindicated.

All cases for which Wertheim surgery is selected should receive full radium and x-ray radiation six weeks before the surgery. In this connection, one committeeman (Enge) makes the interesting observation that abdominal radiation predisposes to adynamic ileus in later operations, and advises that only radium be used before the surgery and the deep therapy afterward.

It is advised that classes 2, 3, and 4 be treated with radium and roentgen therapy only.

The recent suggestion that adenocarcinoma of the body of the uterus be treated by subtotal hysterectomy, the cervix being left for future radium implantation, seems illogical, particularly in the absence of evidence supporting the procedure.

It is felt that the grading of curettings has not as yet reached a position of much value in the determination of treatment, though in general it supports the treatment proposals stated above. For instance, adenocarcinoma of the corpus is more often than not of grade 1 or 2, Broders, and hence should be more amenable to surgical treatment than the more malignant radio-sensitive squamous-cell cervix cases many of which are of grades 3 and 4 (Costolow). It is probably not wise, however, in the present state of our knowledge, to scale down the

radium dosage because of this grading. The grading is of importance in prognosis.

Scarcely any two prominent clinics in the world use exactly the same radium technic, yet statistics from all that use adequate dosage show about the same results. All appear to use what may be described as modifications of the methods of the Radiumhemmet in Stockholm or of Regaud in Paris. Most of the committee members favor the Stockholm procedure.

A typical Radiumhemmet treatment is as follows: Three treatments are given: the second, one week after the first; and the third, three weeks after the second. Thus the treatment is completed in one month. Each treatment is the same, 33 to 40 mg. radium element in the uterus and 70 mg. in the vagina against the cervix. The latter is screened with 3 mm. of lead or its equivalent in other metal. The time of treatment is 22 hours, equivalent to 741-882 mg. hours in the uterus and 1500 mg. hours in the vagina.

This plan is varied in some instances. If the uterine body is involved, 46 to 75 mg. are applied in its cavity without risk to surrounding tissue. A small atrophic uterus may need only 25 mg.

If the vaginal surface of the tumor is large, 100, or even as much as 140, mg. are occasionally considered advisable for the first treatment. When this is done, the second and third treatments are reduced, to prevent the total vaginal dose from exceeding 4500 mg. hours.

Sometimes only two treatments are given, the interval being three weeks. In that case, the dose is reduced, experience indicating that 4500 mg. hours divided into three treatments is equaled by 4000 mg. hours at the most, given in two treatments.

Experience will suggest other modifications in screening, distance, and character of applications, but much reduction in total dosage is likely to impair results.

The long-continued small dose method of Regaud has many advocates. Fifty to sixty mg. of radium suffice for one treatment. Half the amount or less is placed in the uterus and the rest in or against the cervix. Screening equivalent to 1.0 mm. platinum is used in the uterus and 2.0 mm. in the vagina with the usual rubber covering. Distance is secured for the vaginal applicator by wrapping it with gauze or inserting it in the middle of an ordinary cork of the size desired. The distance helps in protecting the bladder and rectum. These applicators are removed daily for cleansing and replaced, the total time being five days or more, till the desired dose of 5000 to 10,000 mg. hours is delivered.

If the parametria are involved, external irradiation with roentgen rays is added to complete the treatment.

The theory of this long-continued small-dose method is that the cancer cells are certain to be exposed during their mitotic changes, when they are believed to be most sensitive to irradiation.

Chorionepithelioma: The suggestion that radium be used routinely after the removal of hydatidiform mole is not favored by the majority of the Committee. However, two (Costolow, Enge) use 200 to 1000 mg. hours, and another (Boller) uses massive doses. Bleeding recurring after removal of mole may be treated with 3000 or more mg. hours (Enge, Boller) or by hysterectomy after positive biopsy findings (Craig, DePuy, Dukes, Costolow, Eder, Evans, Graham, Maxwell, Schaupp, Tollefson).

Routine curetting after abortions, as a prophylactic, is not advised.

The presence of bilateral ovarian cysts associated with fetal cells in the uterus would warrant radical surgery, Wertheim (Boller, Dukes, Enge, Ewer, Maxwell). It would not warrant hysterectomy without evidence of uterine metastasis, in the opinion of others (DePuy, Schaupp, Tollefson).

Ovarian Tumors: The Committee is in general agreement that proliferating ovarian tumors should be regarded as potentially malignant lesions. Small cystic ovaries which are not causing symptoms may be safely treated by conservative measures, which must be controlled by frequent examinations. The insidious onset of true ovarian neoplasms demands careful checkup of any woman in whom the diagnosis of ovarian "cysts" has been made, since functional disturbances or pelvic symptoms are usually late in onset. It is generally accepted that proliferating serous cysts, in contrast to pseudo-mucinous cysts, have a tendency to bilateral ovarian involvement, although the process may not be contemporaneous; moreover, papillary tumors have a distinct tendency to malignant degeneration. The Committee is unanimous in advising bilateral salpingo-oophorectomy with hysterectomy when serous cystadenoma involve both ovaries. When only one ovary is affected, a conservative attitude is more prevalent. Craig, Evans, Ewer, Graham, Schaupp and Tollefson recommend removal of the involved ovary; Costolow and Enge advise conservatism if the patient is under 35 years of age; bilateral salpingo-cophorectomy, with hysterectomy, is advocated by Boller, DePuy, Dukes, Maxwell. All agree that peritoneal transplants from these tumors can be controlled by roentgen-ray therapy.

Ovarian Carcinoma: Primary ovarian cancer should be treated by a radical removal of the pelvic organs, followed by deep roentgen-ray therapy to the entire abdomen. In the presence of ovarian carcinoma with peritoneal metastasis, there is a diversity of opinion as to treatment. With the exception of Boller, who advises no treatment, the Committee recommends that the primary tumors and uterus be removed completely and deep roentgen-ray therapy be applied to the abdomen. If complete removal of the carcinoma is impossible, Costolow, Eder, Ewer, Maxwell, and Newell favor removing as much of the neoplasm as is possible and following this up by deep roentgen-ray treatment. This incomplete operation is effective in relieving pain and pressure symptoms and, while it may be regarded as purely palliative, Maxwell has seen several apparent five-year cures follow this procedure.

The significance of bleeding in a woman past the

menopause in whom diagnostic curettage reveals hyperplastic endometrium, is considered as strongly presumptive evidence of ovarian malignancy (Boller, DePuy, Dukes, Enge, Ewer, Graham, Maxwell, Schaupp). Craig and Tollefson consider such findings significant only in the presence of ovarian tumors. Maxwell has seen three cases of granulosa-cell carcinoma with no enlargement of the ovaries, in women past the menopause, with hyperplastic endometrium and uterine hemorrhage.

The majority of the members of the Committee regard leukoplakia and kraurosis vulvae as lesions which frequently terminate as vulval carcinoma, and advise treatment ranging from radiation to resection of the involved tissues. Newell sounds a warning in radiating leukoplakia, for, in his experience, it has always been followed by recurrence; and, by damage to the blood supply, may add to the danger of epitheliomatous alteration.

The Committee has no uniform treatment for vaginal and vulval carcinoma. Roentgen ray to regional lymph glands and radium for the local growths, are advocated by some members; others favor local removal of the growth, usually by electro-cautery knife with supplementary roentgen ray and radium to lymph glands. A wide resection of the carcinoma with removal of superficial and deep inguinal lymph glands and roentgen-ray therapy, are recommended by Craig, Enge, Graham and Maxwell.

DISCUSSION: SYMPOSIUM ON CANCER

DR. J. M. FLUDE (Los Angeles, Calif.): I am sure we have all immensely enjoyed these splendid papers on the clinical aspect of the cancer problem. The motion picture films are particularly interesting in that this is a rather new venture in the educational field.

As Field Representative of the American Society for the Control of Cancer, New York City, I should like to present for your consideration the cancer problem in its larger aspect, namely, the cancer control question. When you stop to consider, as Dr. Toland has told you, that cancer has jumped from sixth to second pllace as cause of death and that, in 1930, over 120,000 people died from cancer, you can readily see what an enormously important proposition it is becoming and that something has to be done about it. There is no question but that the program as inaugurated by the California State Medical Society is one of the first of its kind in the United States. The eyes of the entire medical profession are focused on the work these men are doing and there is no duobt but that they will uncover a lot of valuable information as far as the problems of diagnosis and treatment are concerned. The American Society for the Control of Cancer has been interested for many years in an educational program, so far as the public is concerned, carrying to it all the information we have about cancer. However, it has been felt recently that we need as much work among ourselves as among the lay public. Consequently, we have consolidated our efforts with those of the American College of Surgeons in correlating the work and trying to arouse an interest in the profession in regard to correlating our knowledge as to the proper treatment, and in the formation of clinical groups. The American College of Surgeons has recommended, in the larger hospitals, the formation of clinical groups, where the men will meet at different intervals and proffer their services as a consulting board for doubtful cases of cancer occurring in their local community. In the past year, there have been quite a number of these clinical groups started in the United States, and in the next two or three years, in each city in the United States, it is hoped there will be at least one such group for this study. State programs have already been inaugurated in a number of states. As to the local problem in such a state as New Mexico, it is quite a different matter, in a state with as widely scattered a population as you have here, where the difficulties in transportation facilities are quite apparent, and, as a recommendation, it might be well if your President and Advisory Council would see fit to appoint a commission to consider the problem and work in conjunction with such a commission as has been appointed in California. The men in New Mexico could receive the advantage of the work that has been done in California without any of the hardships or additional expense, and I think that such a program might well be carried out here. If such commission would confer with the California Commission there might be an affiliation formed. The instigation should be in the Medical Society and not by any outside organization, either lay or professional. The State Public Health Department should have charge of any educational program for the laity and any assistance the American Society can give will be furnished. This, I am sure, would work out to the best advantage.

DR. HUGH T. JONES (Los Angeles, Calif.): I wondered why an orthopedic surgeon was asked to discuss cancer of the breast and cancer of the bronchus, but guess I can say a little something on bone metastases of cancer of the breast. These cases are extremely painful and we must depend on the roentgenologist and men giving x-ray treatment in conjunction with the surgeon, to give palliative relief of pain in these very painful metastases. In Dr. Lemon's paper, I was interested in the question of etiology. He finds very little cause or evidence of cause in the development of carcinoma of the bronchus, in associating it with a long-continued process in the lung. If I may carry it over into the orthopedic aspect, I would think of the long-continued suppuration from a bone. In osteomyelitis, we have such a long-continued process and I find quite often after many years of this drainage there is enough irritation of this pus on the skin to develop an epithelioma, so, if knowledge is worth anything, we might expect that a chronic irritation from a long-continued suppuration of the lung might have something to do with the development of carcinoma of the bronchus.

DR. C. H. GELLENTHEIN (Valmora, N. M.): I should like to ask if carcinomas of the bronchi in region of the lung are more prone to metastases than others.

DR. E. H. McINTYRE (Santa Fe, N. M.): In discussing Dr. Toland's paper, it certainly deserves a great deal more attention than can possibly be given at one meeting. In the light of present statistical studies made by individual state health departments, as well as by the Federal Government and many agencies, the fact that the incidence of death due to malignant neoplasms is rapidly increasing cannot be denied. It may be that greater precision in filling out the medical certificates of death is responsible in a small measure for some of this increase, but that it is responsible for an increase of some 30 per cent is not to be conceived, so we must accept the fact that there has been a large actual increase in malignancy. It is hoped, with the careful and more accurate completion of death certificates, insofar as cause of death is concerned, that future statistics will be more reliable. The present state of our knowledge is not sufficient to permit of the formation of such procedures for the suppres-

sion of this malady as have been successfully employed for the control of infectious diseases. However, a reduction in the incidence of malignancy becomes a question of knowledge. That the education of the general public constitutes a problem, the solution of which rests primarily with the health authorities, is apparent, and it would seem advisable and advantageous for a state cancer commission to cooperate with the state boards of health in promoting campaigns, so that the general public would be educated in accordance with the plans of the Cancer Commission. Such an educational program must result in the public becoming well informed in regard to cancer. Also, perhaps, with the establishment of cancer commissions, there would automatically arise a public demand, creating public sentiment which would achieve financial aid through legislation. I believe every state medical society should form within their organization a cancer commission, such as other states mentioned by Dr. Toland have already done.

DR. TOLAND (closing): I am very glad to hear the discussion of Dr. McIntyre bring out the importance of the establishment of cancer commissions. The main point of the Commission now is to correlate the information we have on cancer and bring it before the medical profession, and then, as soon as possible, we intend to start work to educate the public and give it the benefits of the knowledge we have attained.

DR. LEMON (closing): I appreciate very much the discussion of this subject. In our cases of cancer of the bronchus we found that 60 per cent were of the squamous type of carcinoma, 35 per cent were of the adenocarcinomatous type, and the rest undifferentiated. We found that 60 per cent were Grade 4, which means a very virulent cancer, and that about 30 per cent were Grade 3. It is very rare to find cancers of Grade 1. We had 14 per cent that had already formed metastases when we first saw them. Untreated cases live from seven and one-half to twelve months: treated cases usually live from fifteen months to over four years. Metastases have occurred in the brain, chest wall, pleura, and in the arterial lymphoid nodes. This is a disease which is increasing. It formerly numbered 1 per cent of all cancers, now it has increased to 8 per cent. It is a disease that can be discovered clinically. The roentgenologist can give the correct diagnosis in 50 per cent of cases and can diagnose lesion in 97 per cent of cases. All lesions should be suspected to be cancerous. There are about 3 per cent of cases which have no symptoms whatever and are accidentally discovered.

DIAGNOSIS AND TREATMENT OF ADENOMATOUS GOITER

JAMES W. HENDRICK, M. D.
Amarillo, Texas.

(Read before the Fiftieth Annual Meeting of the New Mexico State Medical Society, held at Santa Fe, New Mexico, May 19-21, 1932.)

Adenomatous goiter is of clinical interest because it is the most prevalent type that the physician will see. If due cognizance is not given, untold damage will be done to the patient. The damage may be in the form of hyperthyroidism of later life, marked deviation of the trachea or pressure on important structures in the area of the thyroid; and a good percentage become malignant. There are two types of adenomas: the fetal type, which is the less common of the two, and the so-called colloid adenoma.

The fetal adenoma is an encapsulated area of thyroid tissue, usually appearing as a solitary nodule resting on normal thyroid tissue. It is classified as a true tumor of the thyroid gland, having its origin in the interacinar cell remnants of Wolfler. The fetal adenoma, being an encapsulated tumor, is free from the periodic cycles of hyperplasia and involution common to the thyroid gland. As the name suggests, the tissue of the fetal adenoma simulates the tissue found in the thyroid of a fetus. The acini are not very well developed, and there is an absence of colloid. When the individual grows older, and growth of the tumor progresses, the acini become better developed, and colloid may be found in small amounts. There may be degeneration with cyst formation, and mild toxic symptoms may develop. Clute states that 90 per cent of the thyroid cancers have their origin in this type of tumor, and that at least 4 per cent of the fetal adenomas become malignant.

Colloid adenomatous goiter occurs more frequently in the so-called goiter belts, but sporadic cases are observed throughout the United States. Often there is a history of a juvenile goiter which persists and becomes nodular, but there may be no history of a previous enlargement of the thyroid; and during the late twenties, a nodular growth is noticed by the patient or friends. The enlargement is caused by single or multiple growths, which may be limited to a part or the whole of one lobe, but more often are found in both lobes and the isthmus. Reinhoff is of the opinion that the number of nodules present depends on the number of exacerbations and involutions that have taken place within the gland.

This form of goiter, once present, is strictly a surgical condition, as it is not amenable to medical treatment. Its course is constant and progressive, and does not run in cycles like the exophthalmic. Willard Bartlett states that, "no matter in what period of life discovered, it is either a present or at least a potential source of discomfort and a menace to life and health, and that the adenoma is the most insidious destroyer of myocardial tissue known." C. H. Mayo says that about 60 per cent of the adenomas become toxic in middle life.

Influenza, tonsillitis, quinsy, bronchitis, physical strain, mental shock, and pregnancy may act as predisposing factors of toxicity in many cases. Whereas,

in other cases, toxicity develops without any apparent stimulating factors.

The consistency of the gland becomes firmer as toxicity becomes apparent. Many patients observe a certain amount of tenderness. The vascularity increases, although there is an absence of pulsation, bruit, or thrill. On section, the gland is of a brighter red color, and it is more fragile. In 1916 Goetsch found that, when toxicity developed, the mitochondria were increased. About 1920 Wilson noted that there was an increase in the activity of the parenchymal cells lining the old acini; also, there was a formation of new acini in the interacinar tissue. The earlier the toxicity develops, the more marked the pathological change. Whereas, in the gland that slowly becomes toxic, these changes are not so apparent.

The symptom complex develops slowly and insidiously in this type of goiter, requiring about three years after the onset of toxicity, before the patient is incapacitated. The cardiovascular system receives the brunt of the thyrotoxicosis. There are a gradual loss of weight and strength, mild tremor and nervousness, palpitation, nocturnal precordial thumping, dyspnea on exertion, and choking sensations.

Tachycardia is one of the first signs of toxicity in adenomatous goiter. The pulse rate will vary from 90 to 120, and it remains accelerated during the entire twenty-four hours. The rate of oxidation, or metabolism, is markedly increased in hyperthyroidism, that is, the tissues consume more oxygen, which necessitates an increased amount of oxygen to be carried to the tissues by the blood. To perform that duty, the heart must beat faster and more forcibly. Over a long period of time, that increased work will cause cardiac hypertrophy and, eventually, cardiac degeneration. Palpitation and dyspnea on exertion are observed early in this type of a case, as the resting pulse is rapid; hence, any exertion will call for a further increase of oxygen to the tissues. A further increase in the already rapid pulse rate, causes the patient to be conscious of the heart beats. As the toxicity progresses and the cardiac degeneration becomes more pronounced, periodic attacks of auricular fibrillation develop. If the toxicity is not removed, permanent auricular fibrillation results, and signs of congestive heart failure appear, with orthopnea, edema, and pulmonary congestion. Any patient who has tachycardia and myocardial symptoms should be examined carefully to determine if a goiter is present. In the event a goiter is present, a subtotal thyroidectomy should be performed. The careful estimation of the basal metabolic rate will be of benefit in determining if the toxicity is of thyroid origin. As the toxicity increases, so will the basal metabolic rate and tachycardia. It should be remembered that the basal metabolic rate is never as high in toxic adenoma as in the exophthalmic type, and with other symptoms of toxemia present, a plus 18 or plus 20 is important. With marked toxicity in this type of goiter, the basal metabolic rate may not be more than plus 40 or 50.

The blood-pressure readings are of considerable importance. Both the systolic and diastolic pressures are increased, but the systolic pressure is increased out of proportion to the diastolic, producing a marked increase in the pulse pressure. For example, compare a systolic pressure of 146 and a diastolic pressure of 80, with a normal individual who has a systolic pressure of 120 and a diastolic pressure of 74. Aortic insufficiency is the only other condition that will give that much pulse pressure. As the toxicity progresses, the systolic pressure is increased, and hypertension results.

Cardiac decompensation, associated with hyperthyroidism, readily regains cardiac compensation when the thyroidism is removed. Whereas, cardiac decompensation due to other conditions, as intracardiac or cardiovascular-renal origin, does not regain compensation readily. The thyrocardiac with marked edema and congestive symptoms, when given proper cardiac management for a short period of time, can be taken safely through a subtotal thyroidectomy with an uneventful convalescence. Perhaps there is no place in medicine where we get as much improvement in cardiac conditions as we do in those resulting from toxic goiter.

Pressure symptoms are very common in adenomatous goiter. A roentgenogram should be made of the trachea and superior mediastinum in all cases of nodular goiter in which the lower poles cannot be palpated. Difficulty in swallowing is seldom complained of, due to the fact that the esophagus is a muscular tube and can be readily pushed out of its normal position without causing symptoms. However, the trachea is a semi-rigid tube, and pressure on it will cause a deviation and constriction of its lumen, and symptoms are readily noted. If the offending growth is unilateral, there may be a marked deviation, and the trachea will be pushed to one side. However, if the growth is bilateral, there may be marked compression, producing the so-called scabbard-shaped trachea. A small growth on the isthmus which is substernal causes an anterior-posterior flattening of the trachea and a marked stenosis.

A careful inspection of the larynx and the upper

part of the trachea should be included in the examination of the goiter patient. The recurrent nerves are in direct proximity to the posterior capsule of the gland, and any enlargement may cause pressure or displacement of the nerves. Paralysis of the vocal cords on one side, caused by a gradual enlargement of an adenoma, may not produce much change in the voice, as the vocal cords on the opposite side will over compensate. If a paralysis of the vocal cords on one side is noted, additional care should be exercised during the operation to prevent injury to the normal side. Judd says that unilateral paralysis of the recurrent nerves caused by goiter, is present in about five per cent of the cases.

X-ray pictures should be made of the neck and superior mediastinum in the anterior-posterior and lateral positions. By having the patient extend his head backward, and filling his trachea and bronchi with air, any abnormality of the trachea can be shown. The lateral view will demonstrate if the growth is encircling the trachea posteriorly. If there has been much degeneration within the adenoma, calcification may have occurred and will be shown more clearly in the x-ray picture.

The goiter may be completely substernal or subclavicular. X-ray examination of the trachea may reveal its presence, in which case there is a marked deviation of the trachea from the midline. Violent coughing or straining may cause the upper pole to bulge into the supraclavicular fossa. Hertzler recounts a case of a lady who had a substernal goiter, and when in society, she would wear the goiter below the clavicle. When attending her household duties, she would wear it above the clavicle. Finally, she nearly died in a fit of coughing at a social function; then she had it removed.

Hemorrhage into an adenoma is not an infrequent event. During the writing of this paper, I was called early one morning to see a patient who was being prepared for relief of a large colliod adenoma. Following a spell of coughing, she noticed a sudden increase in the size of the goiter. One hour later, there were marked respiratory symptoms, coughing, choking, and cyanosis. About 60 cc. of hemorrhagic fluid was aspirated from the tumor, with immediate improvement in respiration. If the hemorrhage is into a small tumor, there is pain and tenderness, simulating thyroiditis. But if the hemorrhage occurs within a large tumor, grave respiratory symptoms may develop rapidly, and produce a real emergency.

MANAGEMENT

Once established, nodular goiter does not respond to medical treatment, whether toxicity has developed or not. If fetal adenoma is discovered in any period of life, it is well to remove it. Most thyroid clinics recommend the removal of non-toxic adenoma after the patient reaches thirty years of age. If removed before that age, there is a possibility of new adenomas developing, or small adenomas being overlooked and later giving trouble. However, if the adenoma is producing pressure on the trachea or other important structures in the area of the thyroid, it should be removed at any age found.

Better results have been obtained when iodine (in the form of Lugol's solution) was used in preparing the toxic patient for operation. A quiet room, where both physical and mental rest can be obtained, is of paramount importance. No cardiac treatment is necessary, unless there are signs of auricular fibrillation and congestive heart failure. Digitalis and a restricted diet will then prove to be of value.

BIBLIOGRAPHY

1. Reinhoff, W. F.: Relation of hyperthyroidism to benign tumors of the thyroid gland. Arch. Surg., Jan., 1926.
2. Wilson, L. B.: The pathology of nodular goiter, Am. J. Med. Sc., 165, 1923.
3. Von Eiselberg, A.: Diseases and injury of the thyroid gland, Sys. Pract. Surg., 1924.
4. Kline, B. S.: The origin of adenomatous goiter, Am. Jour. Path., 1, 1925.
5. Bloodgood, J. C.: Adenoma of the thyroid gland, Surg. Gynec. and Obst., 2, 1926.
6. Wilson, L. B.: Malignant tumors of the thyroid, Ann. Surg., 74: 1921.
7. Crile, George W.: The Thyroid Gland, W. B. Saunders Co., 1922.
8. Goetsch, E.: Functional significance of mitochondria in toxic thyroid adenoma, Johns Hopkins Hosp. Bul., 27: 1926.
9. Hertzler, A. E.: Diseases of the Thyroid Gland, C. V. Mosby Co., 1929.
10. Pemberton, J.: Substernal and intrathoracic goiter, Jour. Lab. Clin. Med., 3: 1917.
11. Von Breitner, B.: X-ray diagnosis of intrathoracic goiter, Lectures Univ. Vienna, Sept., 1930.
12. De Quervain, F.: Goiter, John Bale and Sons, London, 1924.
13. Von Breitner, B.: Injury to the recurrent laryngeal nerves by large adenomatous goiter, Lectures Univ. Vienna, August, 1930.
14. Judd, E. S.; New, G. B.: The effects of trauma on the laryngeal nerves, Ann. Surg., 1928, 257-262.
15. Bartlett, Willard: Surgical Treatment of Goiter, C. V. Mosby and Co., 80, 1926.
16. Mayo, C. H., Quoted by Willard Bartlett.
17. Hertzler, A. E.: Mixed tumors of the thyroid, Arch. of Surg. 1187, 1928.
18. Speese, J.; and Brown, H. J.: Malignant degeneration in benign tumors, Amer. Surg., 648, 1921.

19. Clute, H. M.: Adenomata of the thyroid, N. Y. State Jour. of Med., Nov., 1928.

20. Ewing, James: Neoplastic Diseases, W. B. Saunders and Co., 1922.

DISCUSSION

DR. W. S. LEMON (Rochester, Minn.): Some basic factors may be briefly stated regarding the behavior of adenomatous goiter. It has seemed to us advisable to encourage surgical treatment in all cases of adenomatous goiter in which the adenomas are at least an inch in diameter. If there is a single adenoma, circumstances may be such as to make its removal advisable at any age. If multiple adenomas are present, it is usually advisable to wait until the patient is over twenty-five years of age. Multiple adenomas are in all probability better removed in all patients over forty years of age. They apparently do not begin to hyperfunction until after an average of fourteen years has passed following discovery.

The reasons for advising removal are three-fold. In the first place, because hyperthyroidism is very likely to develop and occur insidiously and do damage before the patient is aware of the symptoms of the disease. The production of increased amounts of thyroxin within the adenoma may occur before symptoms appear and this hypothesis is based on the assumpton that the thyroid gland normally produces approximately ¼ milligram of thyroxin each day. If the hyperfunctioning adenoma produces as much as ⅛ milligram, then the call of the body for thyroxin is satisfied if the gland itself produces ⅛. If the adenoma produces as much as ¼ milligram, the gland itself becomes at rest, but if the adenoma (or adenomas in multiple cases) produce more than ¼ milligram, then hyperthyroidism appears symptomatically.

The second cause has to deal with the matter of the growth of the adenomas, which sometimes progresses to the formation of even large tumors. This occurrence is attended with the danger of tracheal compression productive of an obstructive type of dyspnea, usually continuous, but subject to exacerbations and causing very marked stridor. Even fatal results have occurred as a result of this compression. The extension of the growing gland may be downward, and it is not unusual in patients past middle age to have them report that the size of the neck has decreased, while, on examination, a tumor can be located beneath the sternum. A substernal goiter then constitutes what is in effect a mediastinal tumor and it is oftentimes very difficult to differentiate it from other tumors in the anterior part of the mediastinum. They may be confused with aneurysm of the aorta, and the calcareous degeneration within them may assume the characteristics of the laminated calcium that occurs in aneurysms. The mere fact that they do not have expansile pulsation does not invariably clear the diagnosis. The one suggestive finding in substernal thyroid which separates it from other tumors of that locality, is the fact that they move on deglutition. If they are fixed in position, it may be impossible to distinguish them from other solid tumors. Rarely, extension may be in the retrotracheal position and, under those circumstances, the enlargement can neither be felt nor seen on x-ray. Then, they may involve one of the recurrent laryngeal nerves and produce a paralysis of the vocal cord on the side of the tumor.

In the third place, an adenomatous thyroid gland should be removed because one in sixty that we see in the Clinic are malignant, and they usually are of papillary type or may be described as adenocarcinomas. Most of the malignancies that occur in the thyroid grow within adenomatous structures and they occur at any time from childhood to old age. The papillary type respond to treatment wtih radium, but the adenocarcinomatous type do not have either so good a prognosis or so prompt a response to treatment. Some cancers are encapsulated within the adenoma and these respond splendidly to surgical removal. Metastases from carcinoma of the thyroid usually occur within the lung or are seen in bone.

A diagnosis of carcinoma is attended with considerable difficulty because it does occur in any age group and because the physical characteristics can only with great difficulty be differentiated from that produced by thyroiditis, by calcification, or by hemorrhage into an adenoma. The hardness of the gland is not diagnostically different in any of these conditions and the rapidity of growth may be simulated by either thyroiditis or hemorrhage. When the gland becomes large, hard, and fixed, it usually is in the inoperable stage, but provides the first positive indication for a correct diagnosis.

The use of iodine in these cases has been discussed for several years, but it would seem probable that the effect really has to do with making adenomas more likely to hyperfunction. They have the tendency toward increased activity under all circumstances, but iodine apparently has the tendency to hasten activity.

DR. F. D. VICKERS (Deming, N. M.): I should like to ask Dr. Hendrick as to the value of x-ray treatment, especially in the case of small adenomas that may be highly secretive.

DR. HENDRICK (closing): I am very appreciative of Dr. Lemon's remarks. As to the time of removing adenomas, the age has moved up to around about thirty years. If removed too early, very small adenomas might be overlooked and there might be recurrence. In regard to x-ray treatment, I would not advise it in any type of adenoma. As to the exophthalmic type, sometimes when we have a patient very toxic to quiet him down for operation we have an x-ray man use the x-ray in addition to medical treatment, but I do not believe you would have happy results in the use of x-ray on adenomas.

ARTHRITIS, UNDER THE LIGHT OF RECENT RESEARCH

EARL D. McBRIDE, M.D., F.A.C.S.
Associate Professor Orthopedic Surgery, Oklahoma University, School of Medicine.
Oklahoma City, Oklahoma

(Read before the New Mexico Medical Society, at its Fiftieth Anniversary, held at Santa Fe, N. M., May 19-21, 1932.)

Triumph has not yet been achieved over that age-old tormentor known as chronic arthritis, or "rheumatism." It is hoped, however, that the recent wave of interest in the disease will overcome the conventional practice in which teeth and tonsils are removed empirically, and the propensity for synthetics of unproved specific value.

The exasperating problem of relieving the local joint symptoms often distracts attention from the fact that the body is sick as a whole. Only when there is a fertile soil for further invasion of the disease, do the symptoms of joint structures give evidence of rheumatic involvement. Really, a small

minority of the individuals harboring dead teeth or cryptic tonsils develop arthritis.

The American Committee for the Control of Rheumatism, headed by Ralph Pemberton, is gaining a wide influence which will gradually accomplish a general enlightenment on this disease. Acknowledging its economic importance, in that it has a greater disabling influence than any other disease, the committee is bringing about the cooperation of various specialties of medicine, the clinician, the roentgenologist, the bacteriologist, the pathologist, the physiologist, and the chemist.

Three phases of the subject have received greatest advancement: (1) An understandable classification has been proposed. (2) The etiological view has penetrated deeply into the biological, biochemical, and bacteriological fields. (3) Treatment is based more on classification and etiological significance.

CLASSIFICATION

Accuracy of diagnosis is the keynote of successful therapy. In the past, classifications have not contributed to an understandable differentiation because they were based on clinical manifestations. Such terms as "rheumatoid arthritis," "gout," osteo-arthritis" and "arthritis deformans," are not indicative of a pathological or etiological distinction. It now is well established that all clinical forms may be classified under two chief types. One: those which produce proliferation of synovial tissue, and atrophy of bone; two: those which produce a degeneration of cartilage and hypertrophic bone growth on joint margins. The first great type occurs chiefly in those under middle age, has an infectious complexion, involves the synovial tissues, and has a tendency to bony ankylosis. The second great type is seen more frequently in those past middle age, has more of a metabolic alliance, involves the joint in physiological degenerative changes, and does not ordinarily result in bony ankylosis.

CLINICAL FEATURES

The proliferative or atrophic type may be recognized through any of the following clinical features:

1. Mono or multi-articular joint involvement, with varying distention of joint capsule.
2. Peri-articular ligamentous involvement, such as commonly follows trauma in the shoulder, knee, or spine.
3. The neuritis form, as in sciatica.
4. The bursal affection, such as in subdeltoid or os calcis bursitis.
5. The lumbago and torticollis affections of the muscles.
6. The tenosynovitis conditions.

The degenerative or hypertrophic form has the following predominating clinical types:

1. Mildly painful fingers, with Heberden's nodes.
2. The dry, non-swollen knee and hip joints, with marked crepitation, but comparatively little disability.
3. Osteo-arthritis of the spine, with the slowly progressive, mildly disabling bone-lipping proliferation.
4. Senile arthritic changes, normally appearing from 45 years to old age.
5. The menopause arthritic syndrome, involving chiefly the knees.
6. Mon-articular phenomena known as "morbus coxae senilis."
7. Metabolic disorders of gouty or endocrine nature.
8. Neurotrophic disorders of syringomyelia, hemophilia, or tabes.

ETIOLOGY

The etiological distinction cannot be so clearly divided as pathological differences. Similar causative agents may produce primary changes in the synovial membrane, fibrous tissue, or cartilage. Evidence of an infectious process can be found in either the proliferative or the degenerative form, and the infecting organism is by no means specific to the certain type. Likewise, a disturbed physiology may contribute to the initiation of either type of arthritis. The influence of heredity, the lowered resistance of body tissues from metabolic variations, the overloading of the gastro-intestinal system, the traumatic influences, and the disturbances of the nervous system, all must be recognized as factors which may contribute to the disease in any of its forms.

It is interesting to compare theories of bygone days with the etiological conceptions of the present day and to note that they are in many ways ideas in new dress. For instance, the old "humoral" theory, that arthritis is due to a morbid flow of humor to the joint, or the "phlogistic" theory, that it is a chilling of the joint, may be allied with the work of Pemberton, Adson, Barney Brooks, and others, who have investigated the character of the peripheral circulation and the effect of the sympathetic system. It has been demonstrated that the periphery of an arthritic joint is two or three degrees centigrade lower than in normal persons, and the rise and fall of temperature in these joints is slow, indicating a sluggishness of the capillary system. The benefit of heat, massage, and exercise, thus is explained.

The ancient theory that the central nervous system was involved, in which the medulla or spinal

cord was thought to be affected by chilling or infection, has its counterpart in the contributions of Adson, who surgically interferes with the sympathetic rami in the cervical or lumbar spine and creates a dilation of the peripheral capillaries, thus increasing local heat and nourishment to the joint tissues.

Next to the infectious theory, the one given most study is that of the metabolic theory. Now, instead of advising elimination of "red meat" from the diet, as was once a popular custom, the patient may eat meat, but reduce the sugar consumption. Likewise, the chemical poisons, such as the urates, lactic acid, and phosphates, once were firmly believed to be the cause of gouty and rheumatic joints. Now it is the "purines" and "toxic split" products of the colon, as well as faulty metabolism of sugar and a deficiency of proper vitamines in the diet.

BACTERIOLOGY

Bacterial invasion may spread through the body in three ways: (1) through the blood stream, (2) through the lymphatics, (3) by direct extension.

In arthritis the infecting agent is considered to attack the tissues through three sources: (1) a metastatic bacterial implantation, (2) toxins emanating from a bacterial focus, (3) an allergic reaction from the bacterial antigen.

The technic of recovering bacteria from the blood, synovial fluid, and lymph nodes, of arthritic individuals, has been greatly improved and much controversy has arisen over the specificity of certain bacterial strains in certain arthritic forms. Cecil, Nichols, and Stainsby found about 69 per cent of cases yielded positive cultures of a hemolytic streptococcus, by culturing the blood clot. Small has developed what he terms the "cardio-arthrides" streptococcus, which he believes is specific. Shands has obtained a high percentage of positive cultures from the synovial fluid; Baer found bacteria frequently in the lymph glands; while Wetherby and Clawson cultured bacteria in 72 per cent of fibrous nodules in rheumatics. Margolis and Dorsey had less positive results, but stress the significance of finding the organisms more frequently in the epiphyseal marrow and bone.

One of the more significant developments of the bacterial background in arthritis is that of the allergic or special cell sensitivity suggested by Zinsser, Swift, Freiberg, Kolmer, and others. While the bacteria found responsible in arthritis show widely differing characteristics, exacerbations and reactions of the joint tissues show a similarity that is strongly of an allergic nature. Tuberculsois and syphilis may be included in this allergic category. It is worthy of note that administration of vaccines often stirs up exacerbations of the foci as well as the local joint pathogenesis, which undoubtedly must be of an allergic nature, or what is spoken of as especial cell sensitivity. It is thought that, when an infectious agent is harboured and acclimatized locally in some tissue, such as a tonsil, prostate, or tooth, the antigens produce a special cell sensitivity of the individual to the organism. Exposure, disturbed physiology, or other lowered body resistance, then gives rise to the acute exacerbation through sensitized joint tissue.

TREATMENT

There is no question but that more is being accomplished for the arthritic in the present day than ever before, yet all therapeutic methods fall short of the desired specific effect. In what, then, can we place our confidence for the improvement of the victims of rheumatic disease?

First, it seems to me that we must follow the suggestions of the cancer-control propaganda, and teach physicians and laymen, as well, that early recognition and thoroughness of treatment is the only hope of saving many cases from severe crippledom. What is a more pitiful sight than the victim of enlarged, sore, and twisted fingers, knees, and hips? Who can say that such a condition could not be prevented by early exhaustive study of the individual, and application of measures which would desensitize his tissues to organisms, and increase body resistance?

Second, it seems that each case must be considered as a law unto itself. The variations of metabolism, in the tissues, the susceptibility and immunity to infectious organisms, and variations in body mechanics, require the full cooperation of many qualified specialists of medicine, and elaborate diagnostic facilities for its understanding.

Third, treatment should be based on a diagnosis as to the classified type.

Fourth, the ultimate aim of treatment must be to raise body-tissue resistance.

The following points are significant in respect to the type of arthritis to be treated. In the proliferative type: (1) Infection usually is plainly discernible because of the inflammatory nature. (2) There is a distinct tendency to bony ankylosis. (3) Bone atrophy often becomes severe. (4) General health is rapidly affected. (5) Pain and physical incapacity is severe and persistent. (6) The carbohydrate tolerance is diminished. Sometimes there is an increase in blood sugar. (7) Fibrous soft tissues often are affected.

In the degenerative type: (1) Infection is not so prominently active. (2) Joints become misshapen, but bony ankylosis is not so likely. (3) The static effect of gravity in weight-bearing and wear of strain increases the pathology. (4) The general health may appear to be excellent. (5) Pain consists of tenderness, not of the inflammatory type. (6) There are signs of senility, premature or natural. (7) Metabolism may be greatly disturbed, obesity may be marked. (8) Endocrines are often at fault, especially at the menopause.

The viewpoint should be broad. Our treatment obviously must be appropriately selected for the type of case at hand. In the atrophic or proliferative forms, every effort must be made to combat the invasion of the infecting organism. Palliative relief of symptoms and systemic corrections are necessary. Orthopedic protection and reconstruction, together with the various assisting applications of physical therapy, should be employed, using every precaution to prevent ankylosis.

In the degenerative or hypertrophic types, the infectious phase probably will not be so important as the endocrine and metabolic disturbances, so that tonic and stimulative medical treatment, together with orthopedic relief of traumatic and static joint stress, must be applied. With such a viewpoint in mind, then the clinician should "go the limit" in the use of his therapeutic armamentarium.

ELIMINATION OF SYSTEMIC POISONS

There is much merit in the more ancient modes of treatment which accomplish hygienic improvement and stimulate constitutional regeneration. They should promote the elimination of systemic poisons, and the relief of fatigue and mental strain. The constant pilgrimage to mineral springs and health resorts is significant of the benefit of hydrotherapy, sweating, and consumption of large quantities of water containing sodium and potassium sulphates or magnesium salts. Permanent relief often fails, however, because of cessation of treatment after the temporary symptoms subside.

COLON IRRIGATIONS

Colon irrigation is again becoming a very popular procedure and is very effective, especially in those of sedentary habits. Statements have been made by Albee and Stern that 90 per cent of the lumbago type of chronic back strain is due to toxins generating within the bowels. The objection to the irrigations is that such treatment cannot be continued indefinitely without harm. Other methods of physical therapy may be mentioned as greatly beneficial, but only in an auxiliary way. Local heat, massage, and exercise, are essential phases of arthritis treatment.

The intestinal-antiseptic drug preparations have been greatly praised, chiefly by the pharmaceutical-house literature, but as yet their effectiveness is questionable.

DIET

Dietary procedures are important and will always hold a prominent place in the therapeutic curriculum. Pemberton has stressed the low carbohydrate intake. Present-day therapists would seem to minimize the importance of chemical irritants of the end products of digestion and stress the metabolic endocrine and vitamine values. However, auto-intoxication is the result of bacterial activity on digestive products, and a low-residue diet prevents carbohydrates and proteins from reaching the colon in undigested form. A well-balanced variety of food intake, therefore, should be limited to the caloric demand of the individual. The influence of vitamines has received popular attention, and no doubt plays a prominent role in the development of infected teeth and lowered systemic resistance.

ORTHOPEDIC MEASURES

A word should be said here about the orthopedic measures. The field of application is chiefly thought of as pertaining to the crippling aspects, but Osgood, Goldthwait, and Swain, long have stressed the importance of posture. Ptosis and impaired circulation are greatly caused by muscular and skeletal imbalance. The application of surgery to the deformities resulting from arthritis, particularly in respect to such procedures as arthrodesis, synovectomies and arthroplasties, has made a spectacular advance within the past few years.

SPECIFIC TREATMENT

Stimulation of resistance and immunity of the body for the bacterial organisms of arthritis may be accomplished in four essential ways: (1) with specific drugs, (2) with non-specific proteins, (3) with non-specific vaccines, (4) with specific vaccines.

Specific Drugs. Little has been accomplished in developing a specific drug. The salicylates long have been relied on, but are palliative only. The synthetic preparations, such as O'iodoxybenzoic acid and similar preparations, have some beneficial qualities. The various dyes, such as mercurochrome, gentian violet and acriflavine, fail to accomplish the desired results. It still is to be hoped that Ehrlich's theory will be fulfilled by finding a drug with a specific toxic action on the protoplasm of the parasite cell, but not on the host.

Protein Therapy. Non-specific protein therapy has had many enthusiastic advocates. The non-specific

vaccines, such as typhoid vaccine, which is having a "play" at this time, fall in the same class as the proteins. The occasional brilliant result is explained in that any protein acts as an antigen and, in cases with good resistance, the complement may be so actively stimulated that the immense non-specific antibody formation takes care of the infection. There is little hope that the non-specific weapons will ultimately win the battle.

Specific Vaccines. We come now to the therapeutic phase which I wish to stress emphatically, though briefly, as being the probable Eureka for which we have fondly hoped. Universal recognition of the infectious background in arthritis gives rise to its actual importance. The lymphoid tissues tolerate the inhabitation of various bacteria until virulence is increased and local resistance is overwhelmed. then invasion advances.

Ever since Frank Billings pointed out so conclusively that removal of focal infection was of paramount therapeutic importance, this practice has been popular. Unfortunately, it has led to much radical and harmful surgery and dental surgery. All too often the first and last thing thought of is the teeth or tonsils. While the importance of infected foci cannot be overestimated in the early stages of arthritis, what are we going to do when all such foci are eradicated and the vicious crippling processes continue? At this point our hope begins to wane, our remedies are speculative, our patient discouraged and ready to try anything of promise.

The orthopedic clinic sees chiefly the derelict class of arthritis. Correction of the deformed joints is futile unless the progress of the disease can be arrested. Usually no more foci are to be discovered and all kinds of treatment have been tried. Twenty-five per cent of cases coming to our clinic have their tonsils and teeth already cared for. Fifty per cent have patronized bath resorts or treatment by irregular doctors. It is quite evident to me that something must take place in this disease similar to chronic syphilis or malaria. The organisms hide out in the tissues and cannot be found. Removing the original focus is like removing the chancre. Burbank, in a paper at the last American Medical Association, demonstrated the finding of streptococci embedded in the tissues of experimental rabbits. Some method must be found to bring them out in the open KI does the spirochete, or else stimulate the tissues to engender a resisting immunity.

Vaccine therapy in arthritis is not a new procedure. However, it now seems an established fact that exactly the wrong procedure was used in the past. Large doses were given for the purpose of securing severe reactions. Sensitivity was increased and much unnecessary suffering endured. Our purpose now is gradually to build up resistance by desensitizing the tissue, and this must be done by giving small doses with very slight reactions.

There are a number of different opinions as to the serological and bacteriological treatment in arthritis. Cecil has isolated an attenuated hemolytic streptococcus which he has found in the blood of a large series of cases of the proliferative type. He tests the patient with the antigen by the agglutination method and selects the positive strains of bacteria for his vaccine.

Small has isolated an organism which he terms Streptococcus cardio-arthritides. He makes a saline extract of the organisms and uses an extremely small dose.

Touart uses the skin test for selecting the specific organism and administers vaccine appropriately prepared for the individual case.

Weatherby and Clawson have isolated a strain from the blood and prepare a vaccine which is administered intravenously. Their dosage is small and they do not get any more than a mild reaction. They depend on the agglutination tests for selectivity of dosage and determination of improvement.

The pioneers of the present-day conception of vaccine therapeutic procedures are Burbank and Hadjopoulos. Originating their work after the methods of Hastings, they rely greatly on the complement-fixation test, as applied in the Wassermann reaction, to classify serologically the organisms which are specific for the individual case at hand. In our clinic we have followed the method of these men because of the thoroughness and definiteness in which they have established their method, and the soundness of its application. We feel that good results are being obtained. Stock antigens of various strains of streptococcus and staphylococcus, colon bacillus, and others, are tested with the patient's blood serum. Cultures are made of whatever foci may be found, be it teeth, tonsils, sinuses, colon, or prostate. Organism thus found also are tested. Where hemolysis is present, the degree of positiveness is noted and vaccine prepared from the organisms proved to be specific.

Preparation of the vaccine differs in many ways from the technic commonly used and is undoubtedly the reason for unusual success. The characteristic principles of their method are:

1. Cultures of the foci are made for autogenous organisms. These, together with a number of stock

bacteria from arthritic patients, are run through the Wassermann technic of complement fixation with the patient's blood.

2. The organisms tested are read as positive or negative according to the degree of hemolysis.

3. The bacteria for making the vaccine are attenuated with phenol, not heated.

4. The positive organisms are selected and a vaccine prepared.

5. Only a mild reaction is imposed.

6. Vaccine is given every week for three months and the patient is retested.

The use of this technic requires much patience and thoroughness, but will reward the careful advocate with positive beneficial results.

SUMMARY

The classification adopted by the American Committee for the Control of Rheumatism should be studied and adopted by the profession.

The viewpoint of the clinician should be broad and his treatment thorough.

The sensitivity theory is rational, and serologic therapy must be directed with an appreciation of allergic phenomena.

The specific vaccine selected by means of the complement-fixation test is reliable and deserves more general trial.

BIBLIOGRAPHY

Arthritis deformans, Nichols and Richardson, Jour. Med. Research, Sept., 1909.

The newer outlook on chronic arthritis, Ralph Pemberton, Surg. Gyn. Obst., Feb. 15, 1932.

The systemic nature of chronic infectious arthritis, Hench, Atlantic M. J. 28:425, 1925.

The localization of streptococci in the tissues of rabbits, Eugenia Valentine and Martha VanMeter, Four Infectious Diseases, July, 1930.

The bacteriology of the blood and joints in chronic infectious arthritis, Cecil, Nichols and Stanisby, Arch. Int. Med., May, 1929.

Synovial fluid in chronic arthritis, Forkner and Shands, Arch. Int. Med., Nov., 1928.

The localization in animals of bacteria isolated from foci of infection, Allen C. Nickel, Jour. A. M. A., Oct. 2, 1926.

Chronic arthritis, Morgolis and Dorsey, Arch. Int. Med., July, 1930.

Serologic specificity of streptococci having elective localizing power as isolated in various diseases of man, E. C. Rosenow, Jour. Infect. Dis., Nov., 1929.

Diseases of the bones and joints, Goldthwait, Painter and Osgood, Leonard, Boston, 1909.

Chronic arthritis, Swain, Jour. A. M. A., July 27, 1929.

Control of intestinal putrefaction by 2-4 dihydroxyphenyl or heptone, Leonard and Feirer, Bull. Johns Hopkins, vol. 48, 1, 1931.

Allergy as a factor in the production of proliferative arthritis, Freeberg, Arch. of Surg., Feb., 1929.

The effect of inflammatory reactions on tissue immunity, Franklin M. Hanger, Jour. Exp. Med., Oct. 1, 1930.

Chronic arthritis, its relationship to allergy and skin sensitization, Ernest R. Eaton, Jour. Am. Institute Homeopathy, Feb., 1931.

Int. Med., Feb., 1932.

Serologic significance of streptococci in arthritis and allied conditions, Burbank and Hadjopoulos, Jour. A. M. A., Feb. 28, 1925.

DISCUSSION

DR. R. W. MENDELSON (Albuquerque, N. M.): This is a very interesting and very conservative paper. So far as classification is concerned, this is still in a chaotic state and, to me, classification is either infectious or non-infectious. We have a tendency to consider all infectious types of arthritis as due to a streptococcus, but from an etiological point of view, climate plays a very important part, because we know that in the tropics we find patients suffering from arthritis, many of them from a visceral arthritis. Dr. McBride's point that each case is a personal equation, is something we should consider fully. I was very glad he did not lay stress on intravenous medication. I believe the day of that is passed and when we have found a focus of infection we should not consider that alone, but should consider the case as a whole.

DR. V. E. BERCHTOLD (Santa Fe, N. M.): I want to compliment Dr. McBride on his splendid presentation of his subject. I am sure we all come in contact with cases of arthritis and, by following his suggestions, we will be able to care for them in a better way. I am more or less interested in arthritis because I have had several attacks myself. I was especially impressed with the variety of cases presented by Dr. McBride and his suggestions on vaccine therapy. I know that specific vaccine in small doses will probably add a great deal to the comfort of the patient, compared with the intravenous injection of vaccines. I should like to ask Dr. McBride if it is possible to culture the stools, and, if streptococcus could be obtained from that culture, would it be wise to use that as a treatment?

DR. McBRIDE (closing): In answer to Dr. Berchtold's question about culturing of stools, we find the organism in the stoool and find the same identical strain that we find in cultures from the tonsils. One of the doctors asked me what kind of results we get from vaccine treatment. I can answer that by explaining that the results are not spectacular; they are very slow, and treatment may take three months, six months, or a year. It depends a great deal upon the patient's attitude. The doctor should explain to the patient that he must not expect immediate relief, that results are slow, as the patient's resistance is built up against the specific organism. Usually, after three to five months, the patient will be feeling much better and will be inclined to discontinue treatment, but if possible it is best to have it continued for a longer period in these cases.

DISCUSSION

(Paper of Dr. William C. Menninger, "The Neurotic Patient," published in SOUTHWESTERN MEDICINE for November, 1932.)

DR. A. B. STEWART (Las Vegas, N. M.): It has been indeed a pleasure to hear this very wonderful paper of Dr. Menninger's. We heard this morning of the tremendous number of people who die each year from cancer and were horrified to find that 120,000 persons succumb annually from certain types of that disease. While the psychiatrist does not blush unseen (if he can help it), his work, we must admit, includes a tremendous group, as statistics show there are over 75,000 commitments each year to public institutions for the control of the insane. There are born each day in the United States 7,000 infants, of whom, under present statistics, 270 will spend their last days in public institutions for the insane. All this gives some idea of the tremendous number of psychoses with which we have to deal. I feel we have had a very wonderful

treat in having this paper presented to us. It certanly shows us our tremendous responsibilities toward the class of individual we are now inclined to push away. In my work, which is state work, I have pushed into my office many patients who are neurotic and who have been cast aside by other doctors.

DR. C. W. IRISH (Pasadena, Calif.): Dr. Menninger has given an excellent general summary of the modern up-to-date treatment of neuroses. These neurotic patients most medical men like to escape. It is hard to treat them and get results. They take more patience and time than any other type of patient, and then, too, we like to treat the things we see, can feel, palpate, and be sure of. In regard to the statistics Dr. Stewart spoke about, those who are insane need to be committed, of course, and are total economic losses, but do we appreciate how much of a loss is suffered in each community by the mental complex? This can bring about as much economic loss as the patient with a decided organic lesion. I would bespeak more patience and more kindliness with this class of patients. I appreciate very much Dr. Menninger's wonderful paper.

DR. J. R. EARP (Santa Fe): I believe it might be possible for the troublesome neurotic patient to become an entertaining subject to the busy doctor and in this way, instead of being a nuisance, he can be made an interesting hobby. There is a little book by Hart, called, I believe, "The Psychology of Insanity," which gives some excellent ideas on this subject, which I would recommend for your reading, as it is very valuable not only in telling how to handle neurotic patients, but also how to understand your fellow creatures. I do not quite understand what Dr. Menninger meant by saying that all psychoanalysis is Freudian. I do not think he means that nobody but Freud can make psychoanalyses. When Freud dies, I am sure that psychoanalysis is going on just the same and will not stand still. You must all have heard that little verse about some of the insects;

"The lady bug has wings of gold,
The June bug wings of flame,
The bed bug has no wings at all,
But it gets there just the same."

My view of the psychoanalyst is that he has wings of gold, and that the psychiatrist, practically with no wings at all, gets there just the same. Not more than one-half of 1 per cent of the neurotics can ever be treated by a qualified psychiatrist, as there are not enough psychiatrists to treat them. About 20 per cent never come to the doctor and have to be dealt with by some other methods. I should like to suggest that we think a little about the mental hygiene movement and the prevention of the development of these neuroses. I believe that we can prevent a good deal more successfully than we can hope to cure, if we pay more attention to the beginning of the neuroses while in the mental hygiene stages.

DR. H. T. JONES (Los Angeles, Calif.): The general practitioners have had a little slur cast upon them for the way they receive these patients. When I went to school, we were taught never to diagnose history until everything else has been investigated. When we are trying to do our best with these patients, they say we are not kind and patient enough. What can one do when a woman comes in and throws her arms around your neck and cries? If you stop and listen to her, you are in for a peck of trouble. I find that cruelty has a way of shaking them out of these set ideas. Now, on the other hand, you will find strong men complaining and saying they cannot do this and that—cannot work—yet you can find absolutely nothing wrong with them on physical examination. In such cases I do not know what the general practitioner can do except refer them to some of these gentlemen who make a specialty of this type.

DR. MENNINGER (closing): What to do with a lady when she throws her arms around your neck, I think is entirely dependent on the individual. It is always safer to have your desk between yourself and the patient. Then, unless she has long arms, you are safe. The problem which every man has faced in general practice is what to do with the neurotic patient. About 99 per cent of these patients first go to the general practitioner. Frequently they may be beyond his general scope of work and he cannot handle the case, so he refers it to a psychiatrist, just as he would have referred some major surgery case to a surgeon. Very few of the text books give any help on the subject. They forget to tell us what to do in treatment, and we can diagnose until we are dead, but still have to find some way in which to treat and handle these cases.

CASE REPORT
Secondary Anemia Due to Malaria.

E. K. ARMISTEAD, M. D.
and
S. D. ARMISTEAD, M. D.
El Paso, Texas

(Presented at Staff Meeting of Masonic Hospital, El Paso, Texas, Sept., 1932.)

This is the case of a well-developed white male, age 49 years, farmer by occupation.

Family History: His father and mother are dead. His father died at the age of 75, of some kidney trouble, and his mother died at the age of 30, following labor. He has two brothers living and well; one half-brother living and well; three half-sisters living and well. There is no history of cancer or tuberculosis in the family.

Past History: Patient has had the usual childhood diseases. The patient lived in Mississippi during childhood and had attacks of chills and fever at intervals for several years. He states that he had an attack of appendicitis in 1907 which kept him in bed for two years. No operation. He had pneumonia in 1917, flu in 1918. He also stated to me that, five or six years ago, while living in East Texas, he had chills and fever. He is the father of five living children between the ages of 13 and 25. No history of any venereal diseases was given by the patient.

Present Illness: Patient states that last December he was suddenly taken sick with severe pain around the rib margin, radiating across to the back, accompanied with distention of the abdomen, nausea, and vomiting. The patient has never gained back his strength, and has gradually grown weaker. In February of this year, his neighbors remarked about the peculiar yellowish color of his skin, which has gradually become more pronounced.

Physical Examination: General Physical Condition: A well-developed man lying in bed comfortably, apparently in no pain. Skin: The skin is smooth and warm and of a lemon-yellow. There are no eruptions or scars. Head and scalp: negative. Eyes: Pupils are equal, regular, and react to light.

Extra-ocular movements normal. There is no strabismus, ptosis, exophthalmos, lacrimation, nystagmus, or conjunctivitis. The eyeballs are lemon-yellow. Ears and nose: negative. Mouth: The mucous membrane is of a pale color. The lips are pale. Teeth are in poor condition. Gums show marked pyorrhea. The tonsils are small. There is no evidence of previous or present involvement of the tonsils. The mucous membrane of the pharynx is of a pale color. Neck: There is no enlargement of the thyroid or salivary glands. There is no limitation or pain on motion. Thorax: The thorax is well formed, symmetrical, expansion is equal on both sides. Lungs: Percussion note is resonant throughout. Breath sounds are vesicular in quality. Tactile and vocal fremitus normally transmitted. No rales were heard. Heart: There is no enlargement on percussion. There are no murmurs or thrills. Sounds are of good quality and the rate is regular. Abdomen: The abdomen is distended, no spasms, no tenderness, no pain or rigidity on palpation. The liver is one finger below the costal margin. The spleen is not palpable. Genitalia: negative. Glandular: no generalized adenopathy. Spine: standing posture good. There is no deformity. Active and passive motions are free, painless and cause no spasm. The upper and lower extremities are equal in length and are well formed. Musculature is good. There are no tremors, no bone deformity, and all joints are normal, and active and passive motions are free in all directions and painless. Reflexes: Knee jerk is sluggish. The other reflexes are normal.

X-ray: On April 19th, this patient was referred to Dr. E. K. Armistead with a diagnosis of gallbladder disease. Dr. E. K. Armistead referred him to Drs. Cathcart, Mason & Dutton for an x-ray picture of his gallbladder. The picture of the gallbladder was taken 14 hours after the dye was administered by mouth, and shows the gallbladder shadow extending down to the lower border of the second lumbar vertebra. A fat meal was given, the gallbladder was again rechecked at 20 hours. No definite gallbladder shadow could be visualized. The gallbladder was functioning normally. A barium meal was given and the stomach and doudenal cap found negative for filling defects. The stomach empties in 6 hours with the advance column entering the ascending colon. No further check was made.

Blood Study: Total white cells, 7000; total red cells, 1,200,000; hemoglobin, 5.3 grams per 100 cc.—32 per cent.

Differential: polynuclears, 80 per cent; lymphocytes, 11 per cent; mononuclears, 7 per cent; eosinophiles, 2 per cent. Kahn and Wassermann, negative.

Treatment: The patient was sent home by Dr. E. K. Armistead, put to bed to rest, and was put on a liver diet. He was advised to return in a week or ten days for further study. He returned to the office on May 7th, stating that he did not feel very much improved. Another check of his blood was made, with the following results: Total white cells, 9000; total red cells, 1,160,000; hemoglobin, 4.65 grams per 100 cc.—26 per cent. Differential: polynuclears, 77 per cent; lymphocytes, 14 per cent; mononuclears, 6 per cent; eosinophiles, 1 per cent.

At this time, Dr. E. K. Armstead recommended a blood transfusion. The patient was admitted to the El Paso Masonic Hospital on May 18th. He had a temperature of 99.6°, pulse of 96, and respiratory rate of 24. On May 19th, he was given a blood transfusion. Patient had a severe reaction. His temperature went to 104°, he suffered from vomiting, was restless and was delirious at times. His temperature varied from 100° to 104°, until May 29th. At this time, Dr. E. K. Armistead was called out of town and left the case with Dr. S. D. Armistead for further treatment. Additional blood studies and gastric analysis were done by Dr. L. O. Dutton. Following these studies, quinine sulphate and liver extract were started, and were continued persistently for six weeks with gradual decreased dosage of the quinine. Following the administration of the quinine, almost immediate results were noticed, and the patient's temperature was reduced to normal, never reaching more than 99 degrees for the remainder of his stay in the hospital.

DISCUSSION

DR. L. O. DUTTON: On May 29th, ten days after the transfusion, the working diagnosis of pernicious anemia was thought to be in error. After adequate trial of liver therapy, there had been no improvement in the blood picture, and a distinct decline in the patient's clinical condition—to which was added the insult of an acute fever—was rapidly resulting in fatal outcome. In spite of the patient's poor condition, it was undertaken to more definitely establish a correct diagnosis. On May 29th, 1932, the following laboratory results were obtained:

Blood Study: Total white cells, 17,900; total red cells, 1,480,000; hemoglobin, 4.5 grams per 100 cc. (27 per cent, Newcomer); color index, practical unity. Differential: polynuclears, 70 per cent; lymphocytes, 23 per cent; mononuclears, 6 per cent; basophiles, 1 per cent.

The red cells still exhibited marked anisocytosis, poikilocytosis, polychromatophilia, and many normoblasts. Reticulocytes, 42 per cent. Fragility: complete hemolysis at .44 per cent saline, with initial hemolysis—above 0.5 per cent saline. Gastric analysis: alcohol test meal, 300 cc. of 5 per cent alcohol. Specimen No. 1: Residual, free HCl equals 0, total acidity, 10. 30 minutes, free HCl equals 0, total acidity, 10. 75 minutes, free HCl equals 32, total acidity, 42 .

Kahn precipitation test, negative. Kolmer quantitative complement fixation test, negative. Stool examination, negative for parasites.

An analysis of the above indicates certain pertinent things. The blood picture first indicates sufficient stimulation of the bone marrow to lead to the expectancy of a rapidly rising erythrocyte count unless there was rapid destruction of cells. The

presence of free HCl in the gastric contents definitely rules out pernicious anemia.

The fragility of the erythrocytes is not typical of that seen in pernicious anemia. Syphilis and intestinal parasites are ruled out as possible factors.

With these data in mind, the history of chills and fever was gone into more thoroughly. It was established that the first attack occurred in childhood (patient lived in Mississippi) and that there have been many subsequent attacks. The story of these chills was typical of tertian malaria. They were promptly relieved by quinine, but quinine therapy was never continued beyond a point sufficient to stop the chills.

In view of this, a restudy of the blood was done, but no parasites were found. The history being so typical, however, it was hyopthecated that the present continued fever was an exacerbation of a quiescent malaria infection initiated by the shock of transfusion. Quinine therapy (20 grs. daily in divided doses) was instituted. Within thirty hours, the temperature came to normal. The general condition became greatly improved and the patient has gone through an uneventful convalescence to clinical recovery.

The behavior of the blood picture during convalescence is not without interest.

June 1st (three days after quinine therapy instituted): Total white cells, 7,500; total red cells, 1,520,000; hemoglobin, 5.35 grams (32 per cent, Newcomer); color index, practical unity; reticulocytes, 36 per cent.

June 3d: Total white cells, 5,000; total red cells, 1,640,000; hemoglobin, 6 grams (36.5 per cent, Newcomre); color index, 1.1; reticulocytes, 32 per cent.

June 14th: Total white cells, 5,000; total red cells, 2,280,000; hemoglobin, 8.1 grams (48 per cent, Newcomer); color index, practical unity; reticulocytes, 25 per cent.

June 25th: Total white cells, 6,400; total red cells, 2,560,000; hemoglobin, 7.45 grams; reticulocytes, 15 per cent.

July 29th: Total white cells, 2,800; total red cells, 3,950,000; hemoglobin, 10.32 grams (59 per cent, Newcomer); color index, 0.75; reticulocytes, 4 per cent.

September 10th: Total white cells, 7,500; total red cells, 3,660,000; hemoglobin, 10.6 grams (63 per cent, Newcomer); color index, 0.8; reticulocytes, 5 per cent.

The red cell count, hemoglobin, reticulocyte count and color index have behaved as in pernicious anemia under liver therapy. However, it is to be noted that such behavior was not exhibited until quinine therapy was instituted.

This case presents a clinical course and laboratory findings rather typical of a small but definite group of anemias previously encountered in a malarial region. Their essential characteristic is a pernicious-type blood picture, presence of free HCl in the gastric contents, absence of neurological symptoms, and a mistaken diagnosis of hemolytic icterus or pernicious anemia. Their therapeutic peculiarity lies in the fact that neither the anemia nor the general clinical condition of the patient improves under liver or quinine when given alone. In combination, however, the improvement is striking and prompt.

The inference is difficult to escape, after consideration of this type of case, that in certain individuals chronic malaria may sometimes initiate a profound pernicious-type anemia which is in marked contrast to the usual secondary type of anemia seen in malaria. Unless the etiology is proved or suspected and quinine therapy employed in conjunction with liver therapy, a fatal outcome is to be expected—as, indeed, occurred in two similar cases seen in the past which were not treated with quinine, although all the other possible therapeutic means at hand were employed.

CASE REPORT

Aneurysm of Ascending Aorta with Rupture into Superior Vena Cava.

E. W. RHEINHEIMER, M. D.
El Paso, Texas

(Presented at Hotel Dieu Staff Meeting, El Paso, Texas, Sept., 1932.)

The patient, male, age 57, railway conductor, married, was first seen on the morning of May 16, 1932, when the chief complaint was pain in the region of the right shoulder, swelling of the neck and head, and "burned spots" on the chest.

Family History: Nothing of pertinent importance developed except that wife cannot live in this altitude because of heart trouble. One daughter, age 19, living and in good health.

Past History: Had only simple diseases of childhood and during entire life has enjoyed good health. For the past two years, there has been a very slight hoarseness which has given no trouble. No history of lues or other venereal infection.

Present Complaint: Began about two weeks previous, with severe boring pain in right shoulder. Did not consult a physician but took one cabinet hot bath which gave some relief from the pain. Following this bath, he noticed several dark-looking spots on the anterior chest, which he took to be burns from the hot bath. Five days later, took two more baths for relief of pain in the shoulder, at intervals of two days, and following these, he noticed that his neck and head were becoming enlarged. Continued his work without difficulty and yesterday one of the railroad officials, noticing the swelling of the neck, insisted that he consult a physician. No cough at any time. No pain except in right shoulder. No difficulty in swallowing. No dyspnea. He insists that the dark spots on the chest and the swelling are due to excessive heat from the cabinet baths.

Examination: Well-developed and nourished male. Slightly obese. The neck and head are greatly

swollen and edematous, with moderate cyanosis of the lips and ears. The facial appearance is similar to that seen after strangulation by hanging. Throat slightly congested and slight pharyngeal edema. Tonsils small. Teeth in fair condition. No tracheal tug. Chest: From the level of the eighth rib on both sides to the neck the skin was a dusky blue and on the anterior chest wall were four cyanotic areas across which numerous dilated venules coursed. There were no retractions or bulgings of the chest wall. Expansion equal on both sides. No pulsations noted even in good light. No pulsations palpable. From the level of the second interspace to the level of the fourth space, the percussion note was dull, this dullness being 15 cm. wide at level of the fourth interspace and extended 9 cm. to the right of the mid-sternal line. Remainder of the lung area showed normal resonance. Normal voice and breath sounds except right base, where there was a tendency to broncho-vesicular breathing. Scattered moist rales right base. Heart: Apex beat not visible or palpable. Thick chest wall makes outline by percussion unsatisfactory. Left border, 9 cm. from mid-sternal line to left. Superiorly the area of cardiac dullness merges with the area of dullness described under the chest examination. This measured 12 cm. wide at the level of the second interspace. Heart sounds of poor quality and seem distant to the ear. No murmurs heard. No thrills. Blood pressure in right arm, 110/70; left arm, 108/70. Heart rate, 92, regular. Vessels: Arteries slightly palpable but not particularly sclerotic. Right external jugular vein greatly thickened but no pulsation. Abdomen: slightly distended and tympanitic. No masses palpable. No areas of tenderness. Liver and spleen not enlarged. No evidence of fluid. Nervous system: Eyes react to light and distance. Superficial and deep reflexes present and normal. No sensory disturbances. Genito-urinary: No scars. No tenderness over kidneys. Blood hemoglobin, 80 per cent. Red cells 4,500,900. White cells 9,200. Polys, 75; small monos, 23; large monos, 2. Blood Wassermann, negative. Urine cloudy, 1028, acid, albumin a trace, sugar negative. Urates and few bladder epithelial cells. Fluoroscopic examination of chest showed tumor mass in mediastinum, extending from level of first rib to upper level of fifth rib, with trachea pushed to the left. Close observation did not reveal any visible pulsation in the tumor. The aortic knob was seen emerging from the upper left angle of the tumor and visible pulsations present in this portion of aorta. Barium mixture swallowed showed esophagus pushed to the left. Heart shadow normal. X-ray plate showed same dense shadow in same area, with trachea pushed to the left. Diagnosis of roentgenenologist was mediastinal neoplasm.

Course. Although feeling well and desiring to go out on his run, patient was put to bed. At 2 a. m., May 17, 1932, he was again seen, at which time the head and neck were greatly swollen and edematous. Swelling so marked that eyes were not visible. Cyanosis of head and neck much increased since morning. Patient complaining of severe pain in right shoulder and crying for relief. Heart sounds barely audible. Patient in moderate shock and covered with cold perspiration. No cardiac murmurs or thrills. Blood pressure, 88/60, both arms. Given one-quarter grain morphine, with relief from pain in shoulder. Heart action gradually weaker until death at 4:30 a. m.

Summary of pertinent physical findings. Dusky cyanosis from level of eighth rib upward, with dilated venules anterior chest wall. Marked cyanosis and swelling of entire neck and head. Right external jugular vein greatly distended, but not pulsating. Large non-pulsating tumor in mediastinum on clinical examination and confirmed by fluoroscopic and x-ray examination. Check-up Kahn reaction was positive.

Antemortem diagnosis: Mediastinal tumor. Aneurysm of ascending aorta considered but ruled out by absence of pulsation in tumor mass. Negative Wassermann, absence of tracheal tug, absence of murmurs and thrills, and presence of marked venous stasis in area drained by superior vena cava. The presence of marked venous collateral circulation was thought explained by pressure of the tumor on superior vena cava.

Postmortem diagnosis. Aneurysm of ascending aorta, with rupture into superior vena cava. Mitral stenosis.

CASE REPORT
Primary Streptococcus Peritonitis

J. TRAVIS BENNETT, M. D.
El Paso, Texas

(Presented at Staff Meeting of Masonic Hospital, El Paso, Texas, Sept., 1932.)

The patient, a well-nourished, white, female child, 6 years of age, was admitted August 16, 1932, and died August 20, 1932.

Family History: Father and mother are living and well. She has one sister, age 7 years, living and well.

Personal History: Patient has never been a robust child. She has had several illnesses and they have usually been severe. She had "influenza" at the age of 8 months, accompanied by bronchopneumonia, and measles at age of 5 years, accompanied by bronchitis. The patient has had numerous colds, each of which has been followed by bronchitis or bronchopneumonia. She had a tonsillectomy at the ago of 4 years. This has been her only operation, and it apparently had no effect on the incidence of colds and bronchitis.

Onset was acute on the morning of August 13th, with fever of 103 degrees and the appearance of a small, painful, enlarged lymph gland in the right groin. The administration of 5 grains of aspirin caused complete subsidence of symptoms, and the patient appeared to be entirely normal when seen late that afternoon, except for slight pharyngitis. The use of the aspirin, 5 grains every four hours,

was continued the next day, with relief to the patient except for fever of 104 degrees during the afternoon, which subsided by night. Early the next morning, August 15th, the patient developed a fever and suffered a chill at 6 a. m., followed by fever of 104.5°. Three hours later, she had another chill and similar fever. At this time, she began to complain of a generalized abdominal pain and severe pain during micturition. Physical examination at this time showed a high fever, a moderately tympanitic abdomen, and a moderate amount of tenderness over the lower part of the abdomen on both sides. The patient did not localize the pain in any site and on pressure no area of localized tenderness could be elicited. An examination of the blood showed a white count of 9000, with polymorphonuclear cells 28 per cent. A specimen of urine showed numbers of pus cells. The administration of sodium bicarbonate was begun, in addition to the use of aspirin. The child remained very ill throughout the day, with a temperature of 102 degrees, frequent generalized abdominal pains, and severe pain on micturition. She did not vomit, and passed flatus without difficulty. On the morning of August 16th, she seemed worse. Her temperature was fluctuant in type, ranging from 100 degrees to 105.5 degrees. She had two chills, vomiting twice, but passed flatus easily. A specimen of urine contained quantities of pus. She still complained of a generalized abdominal pain and of a very severe pain on micturition. When seen that day, her abdomen was extremely tender to pressure over its entire surface, with no discernible area of localized tenderness. There was definite muscular rigidity over the lower portion of the abdomen on both sides. Rectal examination revealed nothing of note. Operation was decided upon.

Physical History: The patient is a well-nourished and well-developed child of 6 years, very ill, with temperature of 103 degrees. Ears, eyes, nose and throat reveal nothing abnormal. Pupils are equal and react to light. There is no thyroid enlargement and no stiffening of the neck. Skin is free from any rash, petechial or purpuric spots. There is no generalized glandular enlargement, but a gland the size of a pea is palpable in the right groin. Lungs are clear throughout to percussion and auscultation. The heart is normal in size, rate is rapid but sounds are of good quality with no murmurs. Abdomen is moderately tympanitic and extremely tender under pressure, especially across the lower portion. There is a definite rigidity over the entire lower abdomen on the right and left sides. No masses are palpable. Rectal examination is negative. There is no vaginal discharge. Reflexes are normal. Urine: albumin, trace; occasional cast and red blood cells; a small amount of pus cells. A working diagnosis was made of general peritonitis and an immediate laparotomy was performed.

Operation: Beginning at 3:35 p. m. and ending at 4:30 p. m. on August 16, 1932, under ether anesthesia, a laparotomy was performed by Dr. R. L. Ramey. Upon admission to the operating room, the patient's temperature was 103 degrees, her pulse was 145, and respiration was 32. A midline incision was made. We found a small amount of free fluid and pus on opening the peritoneum. The intestines, omentum, and peritoneum were acutely inflamed. The appendix was removed with inversion of stump. The appendix was long and acutely inflamed. The pelvis was explored. The uterus, tubes, and ovaries were apparently normal. Two tubes were put down to the pelvis for drainage.

Course: Following the operation, the line of treatment consisted of forcing fluids by vein and proctoclysis and administering small amounts of liquids frequently by mouth. Normal saline was administered intravenously twice daily in 500 cc. amount, and a blood transfusion of 300 cc. was given on the day of death. For two or three days after the operation, the condition of the patient seemed improved, although her temperature fluctuated widely between 100 degrees and 105 degrees. On the third postoperative day, she began to have irrational periods which fairly rapidly became more frequent, until she became comatose a day before death. During this time, her color became more cyanotic, her respiration more labored, and her pulse irregular at times. Throughout the entire postoperative period, the patient was almost constantly troubled with abdominal distention (although she passed flatus freely), and always suffered a great deal of pain during micturition. In spite of a blood transfusion, course was rapidly downward the last day, with increasing cyanosis and failing pulse, death ensuing August 20th.

DISCUSSION

DR. J. TRAVIS BENNETT. Faced with a situation as presented here, one can but realize the seriousness of the prognosis. The sudden onset, high fever, marked prostration, and the low white blood-cell count, all indicate the fulminating character of the infection and warrant an unfavorable outlook. With high fever right from the onset combined with other symptoms and the lack of any localized abdominal pain, appendicitis could hardly be considered, and this view was confirmed at the operation. Unfortunately, a culture of the fluid found in the abdominal cavity at the operation was not made, but from its character and the appearance of the fiery red intestinal coils, there is no doubt that this was a case of primary streptococcus peritonitis.

It is interesting to note that Richter, writing in "Abt's Pediatrics," states that there seems to be a seasonal relationship between streptococcic peritonitis and epidemic sore throat and that the disease occurs almost exclusively in young girls. The mechanism of infection of the peritoneum from the sore throat is not clear, but probably an hematogenous route would be the most likely. The throat of our patient was not remarkable except for a mild redness at onset—certainly not the picture of streptococcic sore throat. It seems more reasonable to assume that the course of the infection was through the vagina, as in the 56 cases of pneumococcic peritonitis reported by McCartney and Fraser and

mentioned by Richter. Convincing bacteriologic and other facts are presented by these writers in support of their view as opposed to infection of the peritoneum through the gastro-intestinal tract or by way of the lymphatics from the tonsillar, pharyngeal, and bronchial lymph glands to the subperitoneal lymphatics. Our patient had no vaginal discharge, but a culture might have shown an abundance of streptococci.

Another interesting point was the occurrence of pus cells in the urine of this patient, both prior to and after her admission to the hospital. It may be that the presence of such a large amount of infected fluid in the abdominal cavity in close contact with the bladder, produced a form of cystitis.

DR. R. L. RAMEY: I shall discuss this case briefly from the operative standpoint. Dr. J. Travis Bennett, who had charge of the case, called me in consultation on August 16th. I saw a well-developed child lying in bed with her legs drawn up, features pinched, a rather anxious expression. The abdomen was considerably distended. Moving the palm of the hand gently over the abdomen gave the child a great deal of pain. She did not move the abdominal muscles on respiration, pulse was rapid, temperature was 105.5.° We, notwithstanding the very high temperature which is rather unusual in peritonitis, also the diarrhea which does at times occur, however, in streptococcic peritonitis, made a diagnosis of peritonitis and decided to operate immediately.

A midline incision was made because we considered her peritonitis general and we could obtain better drainage than we could through a McBurney's incision or a right rectus incision. On opening the abdomen, we found a general diffuse peritonitis. The pelvis was filled with a serous exudate and we investigated no further than was absolutely necessary. The appendix was found free and was easily removed. Macroscopically, it did not seem to be the cause of the peritonitis. Two split drains of soft rubber were introduced down to either side of the pelvis. The omentum was brought down and the abdomen was closed. The after treatment consisted of saline and glucose intravenously and the Murphy drip, with the patient in a modified Fowler position.

The temperature and the pulse continued high. The temperature between 104.6° and the pulse from 130 to 160 and more.

I have usually followed the hobbies of three distinguished surgeons, as advocated many years ago. Operate early, as advised by Deaver. Give nothing by mouth (the starvation treatment, as advocated by Ochsner), and the Murphy drip. This is routine. In addition we use the duodenal tube when there is distention and distress, giving morphine as needed. We are unable to state the cause of the peritonitis. It may have been due to the appendix, which I doubt, or it may have been due to a streptococcic infection of the throat, as this child had pharyngitis a few days before it was taken seriously ill. I am inclined to think this was the cause, as it is not very uncommon in children to get this type of infection from the throat.

DaCosta reports thirty-five cases of streptococcic infection, claiming ninety per cent of the cases had a pharyngitis from four to seven days before the peritonitis developed. This patient died on August 20th, four days after her operation.

Some claim these patients die from absorption of poison from the peritoneal cavity, and others, from a lymphangitis. We feel that both play an important part in the termination of this highly malignant type of infection.

REFERENCES

Richter, H. M.: In Abt's Pediatrics, vol. 3, p. 514.
McCartney, J. E.; and Fraser, J.: Pneumococcal peritonitis, Brit. J. Surg., 9, 479-489 (April, 1922).

A CASE OF UREMIA

J. D. HAMER, M. D.
Phoenix, Arizona

(Presented at the Staff Meeting of the Good Samaritan Hospital, Phoenix, Arizona, March 28, 1932.)

Mr. B. H., a male of 32, salesman, entered the hospital on Feb. 5th, and was released on February 25, 1932.

His illness began six days prior to his admission, and I first saw the patient three days before admission. On the first visit, the patient was having an attack of influenza, and had been having chills and fever, cough, pain in the chest, a profuse nasal and bronchial discharge, malaise, nausea and vomiting, and severe cramps in the legs, for three days before this first visit. His temperature this night was 104°. Treatment was instituted, and the next day he felt better, with much less severe symptoms, except nausea and vomiting. Emesis of stomach contents continued for two days, then subsided quite well, and at this time it was noticed that there was a slight icterus of the sclerae. However, on the night of Feb. 4, the day before admission, the vomiting started again, and there were fourteen spells that night. At this time, an examination of the abdomen showed nothing abnormal except slight tenderness in the mid-epigastric region. On the morning of Feb. 5th, the patient continued to vomit, and the character changed, first to bile-stained fluid, then to sour fecal-smelling contents. This patient had given me a history of having a kidney infection in 1927, and an attack of kidney-stone colic, consequently a urine was run in the office the day previous, but did not show anything remarkable. By this time, also, the respiratory infection had become quite attenuated, the temperature had been normal for two days, and with the exception of the persistent vomiting, the patient appeared comfortable and free of symptoms. The blood pressure was 140 systolic, and 80 diastolic. I felt that it was necessary to remove the patient to the hospital for further observation, and to see what could be done to stop the vomiting. The character of the emeses

suggested an approaching obstruction; repeated enemata had failed to produce satisfactory results; and the jaundice had deepened slightly.

The past history is interesting because I felt that it had a distinct bearing on the course of this patient's difficulties. As indicated before, he had had some type of kidney disturbance in 1927, and although he was somewhat confused as to its nature, he felt that an old chronic case of gonorrhea had something to do with its production. He was sick at that time for a preiod of three months, and on two occasions had passed a kidney stone. He had no history of scarlet fever during childhood. There was no other illness of importance except that for the past several years he has had a rather severe catarrhal condition of the nose. He is now married; his wife is in Arizona for a mild pulmonary tuberculosis; he has three children, all well. Appetite, weight, and general physical condition have been satisfactory since 1927, although he has been constipated. There is no history of kidney disturbance during the past few years, except an occasional nocturia. However, this patient has, for a number of years past, been a fairly consistent devotee to alcoholic liquors, and during the past fall and winter, has imbibed fairly regularly, with week-end sprees, and the nature, quality, and estimated consumption have been matters of very little concern. Corn liquor, Padre's Wine Tonic, Jamaica Ginger have all contributed to the enjoyment of a splendid week-end.

On admission, the patient had a temperature of 98.6°, pulse of 90, blood pressure of 150/86, the skin somewhat pale, dry, and average temperature. The eyes externally were negative except for slight icterus of the sclerae. Teeth were in fair condition, the throat uniformly red, as were the nasal mucous membranes. The tongue was dry, deeply coated, brownish white in color. The neck was normal. The lungs showed slight dullness over both apices, with a few scattered coarse rales. The bases of the lungs were resonant, with many coarse and medium bronchial rales heard, more on the right side. The heart was normal. The abdomen was slightly distended throughout, and tympanitic. No masses, ascites, or enlarged viscerae were palpable. Borborygmus could be heard over the entire abdomen, more on the left side. The G. U. system was negative externally. Reflexes, neuromuscular system, bones, and joints were all normal. The white count was 8,200, with 75 per cent polys, and the urine was amber, alkaline, showed a trace of albumin, and 8 to 10 pus cells. Sputum was negative for tubercle bacilli, but showed catarrhalis and pneumococci.

Treatment was at once directed toward controlling the vomiting, and getting the bowels open. Enemata of several varieties were used, intravenous glucose was given in good amounts, and stomach sedatives were given. For forty-eight hours this

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A CASE OF PLACENTA PREVIA

BENJAMIN HERZBERG, M. D.
Phoenix, Arizona

(Presented at the Staff Meeting of the Good Samaritan Hospital, Phoenix, Arizona, Jan. 25, 1932.)

Patient No. 10253 entered the hospital with a diagnosis of placenta previa. On admission, the patient was in a semi-comatose condition and no definite history could be elicited. Later it was determined that she had been bleeding vaginally for more than three days, and her friends had attempted to stop the hemorrhage by packing her with whatever materials happened to be at hand, namely, pieces of old overalls and dirty underwear. The physical examination was generally negative except for the symptoms of extreme exsanguination and vaginal bleeding. She also had tourniquets around both arms and around her upper abdomen, luckily, these were not tight enough to have done any permanent harm.

While preparations were being made in the delivery room, hypodermoclysis was started. Vaginal examination revealed a definite central placenta previa, with the cervix thin and dilated to about 8 cm. The placenta was torn through manually, after which, both feet were brought down, and a 7½ months premature baby was easliy extracted. The baby cried spontaneously and was placed in the incubator. After the delivery, the patient hemorrhaged rather profusely, so the placenta was removed manually, which stopped all hemorrhage. Immediately after the delivery, she was given 2 cc. of pituitrin and 1 cc. of hypodermic ergot, also 2,000 cc. of saline hypodermoclysis and 1,000 cc. of 10 per cent glucose intravenously. The laboratory report at this time was as follows: Red blood cells, 3,100,000; white blood cells, 15,500; hemoglobin, 65 per cent.

This was repeated the following day with the following report: Red blood cells, 1,880,000; white blood cells, 13,800; hemoglobin, 45 per cent; polys, 79 per cent; lymphocytes, 21 per cent.

On the basis of the history and the comparatively high white count, infection was suspected, so she was given 6,000 cc. of fluids in 18 hours and a drachm of ergot every 4 hours.

The temperature was under 100 until 24 hours after delivery, when she had a chill, followed by a rise in temperature to 102.2°. This was followed by another chill and rise in temperature to 103.2°. Also at this time there was a distinct decrease in the amount of lochia. The ergot was continued and the fluids increased. In the evening, her temperature dropped to normal, but during the night she had another chill, which was followed by a rise in temperature to 105°.

A very noticeable feature of this case was the comparatively slow pulse. Even with temperatures as high as 105°, the pulse never was over 120, and most of the time stayed under 100.

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PUBLIC HEALTH NOTES

J. ROSSLYN EARP, DR. P. H.
Director New Mexico State Bureau of Public Health.

IS PUBLIC HEALTH DYSGENIC?

Every now and then I meet some highbrow who on hearing that we have a big infant mortality in the state, remarks: "I hope that you are not trying to make it smaller" in a tone of voice that plainly implies "You poor fish, I'll bet you are. Thank God I am not a sentimentalist; look at my brain."

With such I do not argue in private; unless there is present some third person who might take my silence for consent. But this month I should like to present for your attention a public exposure of the highbrow case. The case is most baldly stated in a recently published Living Philosophy as follows:

"I do not believe that the care and the pity given by the strong to the weak have helped civilization. . . . Men are what they are by the law that controls the cells of germ reproduction, and not by weight of prayer or education."[1]

Health, in the long run, these people maintain, is a matter of breeding a healthy stock. If we save the weakly babies, say they, we gradually weaken the race. It sounds all right until one stops to inquire what is meant by "weakly." It must mean having a low specific resistance to the particular diseases that are killing them. That is when "weakly" has any meaning at all. For we must remember that many of these babies left to natural selection get such an overwhelming dose of virus that the strong are slain as well as the weak.

The highbrows thus believe that in leaving babies to die we breed a race that has a higher specific resistance to certain diseases—a higher racial immunity. No doubt this is true, but what a crude and ignorant method of combating infectious disease! Suppose that we had used this method against yellow fever and malaria instead of anti-mosquito campaigns! Suppose that we had relied on eugenics rather than pure water supplies to eliminate typhoid fever! Is it any more sensible to lean back in our comfortable chairs and leave to natural selection the conquest of diseases like syphilis and dysentery which are killing off babies at the present time?

And among the babies that they throw so intellectually away are poets, statesmen, inventors and scientists whose great gifts were unavailing in the crude "eugenic" test. Oh, you apostles of callow kindliness, you tepid pioneers!

THIS HEALTHY DEPRESSION

A good deal has been said in political circles as well as among vital statisticians about the low rates of mortality that have prevailed during this economic depression. Some have suggested that forced temperance in the matter of food intake has actually done us good. This theory is very roughly handled by Dr. Arnold B. Armstrong of the Metropolitan Life Insurance Company.[2] If there are any diseases of overfeeding they must be the chronic degenerative diseases the mortality from which would hardly be affected immediately by a change of habit. Moreover there has been not a decrease but an increase in the mortality from this group of diseases during the depression. Doctor Armstrong attributes our relative health during the last few years to the low incidence of influenza and pneumonia. This affects our death rates both directly and indirectly because when the rates from influenza and pneumonia go up, rates from tuberculosis, heart disease and certain other causes also show a rise.

"Finally," says Dr. Armstrong, "it seems safe to assume that disaster might impend should the curtailment in public facilities for the control of communicable disease and for the carrying on of certain essentials in public health practice approach or reach a point where the absolutely vital community protective measures would be sacrificed."

Reports from the recent annual convention of the American Public Health Association in Washington indicate that many of the leaders of public health in this country are seriously disquieted lest the forces working for health preservation against a growing burden of poverty and unemployment should find themselves in the coming year so handicapped by diminished appropriations that the task will prove too great for their resources.

LIGHTING CODES

A useful handbook on lighting standards and practices has just been issued by the Women's Bureau.[3] The pamphlet includes an article by Dr. Janet Howell Clark on the Importance of Good Lighting from the Standpoint of Eye Fatigue as well as the code of the American Standards Association. Although the publication is intended primarliy for industrial communities it contains information that will be of interest to all who are responsible for the lighting of schols and other public buildings.

REFERENCES

1. Julia Peterkin in Living Philosophies. Simon and Schuster, 1931.

2. Armstrong, D. B. Observations on the Depression and Public Health. Med. J. and Rec. Sept. 21, 1932.

3. U. S. Dept. of Labor Bulletin of the Women's Bureau, No. 94.

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ANNUAL CONFERENCE OF STATE SECRETARIES AND EDITORS IN CHICAGO.

An exceedingly important gathering was the Conference of Secretaries of Constituent State Medical Associations and Editors of State Medical Journals, held in Chicago on November 18 and 19. The entire conference was devoted to the discussion of various methods of group practice and contract practice now in vogue in the United States. The discussion was opened by Dr. E. H. Cary, of Dallas, Texas, President of the American Medical Association, in which he outlined the problems now facing the medical profession of the country, closing with seven pertinent questions, as follows:

1. Should we or should we not advocate as a basic principle the Iowa plan of dealing with indigency?

2. Should we or should we not develop a comprehensive inclusive county medical society plan of creating a budgeting system whereby the catastrophic needs of the people can be met at a cost within the reach of the families who are unfortunately ill?

3. Should we or should we not condemn all hospital insurance schemes for the care of the ill? Or, is it possible to discriminate and say to hospitals that no plan will be recognized as worthy, which includes the physician's services but such hospitals are to be opened to all members of the county medical society, preserving free choice of medical service on the part of the patient.

4. Should we or should we not bring all the pressure we have to bear upon the December Congress to establish a different policy toward the hospitalization of non-service disabled veterans?

5. Should we or should we not demand the repeal of the 202-10 amendment which has opened the government hospitals to all non-service disabled veterans?

6. Should we or should we not strive both to limit the number of new medical graduates and to develop the field of immunization and preventive medicine for private practitioners?

7. Should we or should we not fight with all the strength of the body medical in its individual and collective entity, the trend to state medicine, in all of its ramifications, which threatens to destroy our professional integrity and material remuneration and to retard the progress of our science?

Dr. Wm. A. Pusey, Ex-President of the Association, discussed the principles and policies of medicine, as laid down by the Judicial Council, summarizing in twelve points, as follows:

PRINCIPLES

1—Medicine is the trustee of society in the care of the sick and injured; its policies must always be governed by this fundamental fact.

2—The good of society must be the sole aim of its public policies and the good of the patient the first consideration in the relations between physicians and patients.

3—Medicine's first responsibility must be to see that its services are available to all men.

4—The public interest demands the most competent medical profession possible. Medicine must be an attractive profession to compete successfully with other professions for the ablest young men.

5—In the sense that every calling from which a living must be gained is a business, medicine is a business; it must accept the competitive conditions of practical life but, as a profession of high ideals, it must seek to prevent selfish commercialism.

6—Experience has shown that the vast majority of disease conditions affecting man can be most satisfactorily and economically diagnosed and treated by a competent individual general practitioner.

RESPONSIBILITIES

7—The services of medicine include (a) the practice of medicine; (b) the promotion of preventive medicine and the public health; (c) the fostering of research and the increase of knowledge.

8—Medicine's chief concern must be for the in-

dividual physician; the service rendered by individual physicians in the aggregate constitutes the great bulk of medical service. The quality of service which is given depends on the competency of the individual physicians who give it.

9—The medical profession asks for its practitioners: Freedom of opportunity to develop to the limit of their individual capacities.

10—It asks a career of independence under conditions of free and dignified competition.

11—It asks remuneration sufficient for reasonable comfort for the individual and for his family.

12—In its ideals of independence, medicine has a right to control its own affairs. Its history of capacity and altruism justifies this claim.

Dr. George E. Follansbee, Chairman of the Judicial Council, spoke on "The Octopus of Medicine," by which term he referred to contract practice in its various forms and ramifications. He stated that the Judicial Council had laid down the decision that any form of contract practice which removes from the patient the free choice of physician, or which introduces any form of solicitation of patients for any doctor or group of doctors, is unethical and should subject the doctor or doctors involved to expulsion from the county medical society.

Dr. J. M. Robb, of Detroit, discussed the proper attitude of physicians toward the various forms of insurance practice, pointing out the difficulties and dangers, but also stating that forms of insurance could be put into practice which are entirely ethical and highly beneficial to patients and physicians alike.

Dr. Dean Lewis, President-Elect of the Association, spoke on some features of medical education and its relation to medical practice.

Dr. R. G. Leland, Director, Bureau of Medical Economics of the Association, continued the presentation of data regarding contract practice which has been appearing in the Journal and in the Bulletin during the past several months.

Dr. D. A. MacGregor, of West Virginia, outlined the specific forms of contract practice in West Virginia. These are so specific that an outline of them is given below for the information of the readers of this journal:

I. Industry checks off for medical care of employee and family.
   (a) Physician receives entire check-off in some instances.
   (b) Physician is on a salary in other instances.
      (1) Balance of check-off is retained by employer, or
      (2) balance of check-off goes to another physician (or other person) holding master contract.
   (c) Industrial accidents are handled through the State Compensation Department.

II. Industrial checks off for both medical care and hospital attention for employee and family (including industrial accidents); so-called "list" practice.
   (a) Physician located at the place of industry (usually a mine) receives a specified check-off, or a salary with the industry retaining the surplus from the check-off.
   (b) The hospital having the contract with the industry receives a separate check-off.
   (c) The industry is relieved of the expense of medical and hospital care for industrial accidents.
   (d) The employee does not have the protection or assistance of the State Compensation Department in case he feels that his treatment has been inadequate at the list hospital.

III. Industry checks off for medical and hospital care of employees for industrial accidents only.
   (a) Employee, and family are not protected in any manner in regard to ordinary accidents or illness..
   (b) Only one coal company in the state is known to be practicing this method at the present time.

IV. A private hospital with a closed staff offers to individuals or groups a contract calling for both medical and hospital attention in consideration of regular monthly payments to the hospital.
   (a) Contracts are solicited by agents of the hospital.
   (b) Contracts are offered to individuals who are regular patients of physicians not on the staff of the hospital.
   (c) Contracts do not cover venereal diseases, injuries due to lawlessness and contagious diseases.

V. The Citizens' Hospital Service, Inc., has been established "so as to provide hospital, and proper medical and surgical care for the sick and injured, who at the time, are members in good standing of the corporation".
   (a) The fund is designed primarily to take care of acute conditions, with the exception of those cases coming under state compensation, venereal infections or their sequelae, and cases arising from acts of lawlessness and normal obstetrics.
   (b) Chronic and incurable cases are limited to one month hospitalization and twenty-five dollars medical fee.
   (c) The patient has free choice as to the selection of the hospital and his physician or surgeon.
   (d) This fund is administered by laymen and twenty-five per cent of the funds collected are allocated to "operating expenses".

VI. Employees Group Insurance Plan conducted by the Union Carbon and Carbide Corporation.

(a) Employees carry a group life insurance policy with the Metropolitan Life Insurance Company.

(b) All dividends from this group policy are placed in a Special Fund managed by trustees elected by the employees.

(c) An employee is permitted to borrow from this fund to pay for medical and hospital care.

(d) He is charged four per cent interest and is required to pay back the amount borrowed through pay-roll deductions in fifty-two weeks..

(e) There is absolutely free choice in the selection of doctor and hospital.

An interesting presentation was the description of the plan adopted by the Medical Society of New Jersey for the certification of specialists in that state. This is a very revolutionary development, and is worthy of study by other state societies.

In the general discussion, descriptions of several plans of group or insurance practice now in operation in various states were given. The one of especial interest to the writer was that briefly described by Dr. Holman Taylor, of Texas. This was a plan of insurance practice, in which a person could secure medical and surgical attention and hospital care by the payment of about twenty dollars a year. It was operated by the doctors, with open staff hospital, the patient being allowed free choice of physician. In the final discussion, Dr. Olin West issued warning about the forthcoming Report of the Committee on the Cost of Medical Care, which he stated would be brought forth with high pressure publicity. He also stated that the minority report, which represents the stand of the American Medical Association, would be given slight emphasis, but for the medical profession that minority report should be the thing to be studied. The American Medical Association will not object to any plan which will give adequate medical service, which will preserve the free choice of physician, which will preserve the relation of an individual doctor practicing on an individual patient, for a fee which is acceptable to the doctor. Any plan which interposes a third agent or agency between the doctor and the patient, whether that agent be an individual solicitor, a corporation, an insurance company, or a governmental bureau, will be opposed vigorously by the American Medical Association.

THE SOUTHWESTERN MEETING

In spite of many difficulties and misfortunes, the Eighteenth Annual Meeting of the Medical & Surgical Association of the Southwest was brought to successful conclusion. Both president and secretary were kept away from the meeting, the former being on duty at the Reserve Officers' Training School at Carlisle Barracks, Pa., and the latter was called home from an eastern trip by critical illness of a member of his family and could not get back to the meeting. Dr. Gekler, the vice president and chairman of the program committee, opened the convention and inducted Dr. F. D. Vickers, the new president into office. From all reports which have come in up to date of this publication, the meeting was enjoyed by all who were in attendance and the papers presented were well received. Many of the doctors on the program failed to keep their appointments, some on account of illness, one on account of compulsory court attendance, and several who felt they could not afford the trip. A more complete account of the meeting will be given in our January issue.

Dr. W. A. Gekler, of Albuquerque, was made President-elect, Dr. F. D. Vickers, of Deming, N. M. going into office as President for the ensuing year. Dr. David M. Davis, of Phoenix, was elected first vice president, and Dr. W. Warner Watkins of Phoenix, was re-elected secretary-treasurer.

El Paso was selected for the 1933 meeting.

SECTIONAL MEETING OF THE COLLEGE OF SURGEONS

Phoenix, March 27 and 28

A Sectional meeting of the College of Surgeons, embracing Arizona and New Mexico and El Paso County (by invitation), will be held in Phoenix, on March 27 and 28, 1933, with headquarters at the Westward Ho. Dr. MacEachern, of the College, was in Phoenix recently making the arrangements for this meeting. It is planned on a more elaborate scale than the one held in Phoenix several years ago. A group of surgeons who will be attending the Pan-American Congress in Dallas (March 20 to 25), will be brought to Phoenix and from Phoenix will proceed to Los Angeles for another sectional meeting in the coast city. This series of meetings will insure a large delegation of prominent surgeons for the Phoenix conference. The usual program of clinics and demonstrations, hospital conferences, scientific meetings, community health meetings, group confer-

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ences, radio programs and other features will be held. A more detailed outline of the program will be given in this journal next month.

PAN-AMERICAN MEDICAL CONGRESS IN DALLAS

March 20 to 25.

A meeting of unusual significance and interest, particularly to the profession of the Southwest, will be the Pan-American Medical Congress to be held in Dallas, Texas, March 20 to 25, 1933. An attendance of more than two thousand is being provided for, with delegates from all the nations of North and South America. This Congress was held last year in Mexico City, and this is its first meeting on the North American continent, except the meetings heretofore held in Havana and Mexico City. A very elaborate program has been projected with sections on General Medicine, General Surgery, Gynecology and Obstetrics, Neurology and Neuro-surgery, Ophthalmology, Rhino-Oto-Laryngology, Orthopedic Surgery, Dermatology and Syphilology, Urology, Radiology, Aviation Medicine, Pediatrics, Tropical Medicine and International Medical Relations. There will be an English speaking and Spanish speaking division in each section, with president, vice presidents and secretary for each such division in each section. In the Section on Radiology, Dr. Warner Watkins of Phoenix is secretary of the English division, with Dr. Albert Soiland of Los Angeles its president. Sectional meetings, general meetings, hospital clinics, round table luncheons, social gatherings, entertainments, will feature this Congress. An unusual feature will be observance of the siesta custom of the Spanish speaking countries, time being allowed on the program for the afternoon nap.

Dr. John H. McReynolds, of Dallas, is president of the Congress. The meeting is under the general direction of the Pan-American Medical Association, of which Dr. Francisco M. Fernandez of Havana, Cuba, is President, and Dr. J. E. Lopez-Silvero, of Havana, is Executive Secretary.

During the week immediately following this Congress, the Annual Dallas Clinical Conference will be held.

A CASE OF PLACENTA PREVIA

(Continued from page 516)

A vaginal smear showed long chain streptococci in almost pure culture; however, blood cultures were negative for all periods. She was transfused with 500 cc. of whole blood. Following this, the temperature varied between 102° and 104° for 2 days, after which it dropped by lysis, reaching 99° four days later.

The patient was discharged on the fourteenth day, apparently in good condition, although I later learned that she developed a typical lobar pneumonia two weeks after her discharge, from which she made an uneventful recovery. The baby was kept in the hospital for five weeks and was discharged apparently in good condition, weighing almost 7 pounds.

DISCUSSION

DR. C. C. CRAIG: I enjoyed Dr. Herzberg's paper very much. It brings to light several points which deserve to be reiterated and brought forth frequently.

First, liberal use of ergot, which undoubtedly held the uterine wall firm and limited the passage of the organisms from the uterus. These travel by the lymphatic chains through the wall of the uterus and into the lymphatic circulation. Ergot hinders this, and permits the body to localize the process at its site of origin. At the same time this is going on, it also gives a chance for the formation of the leukocytic wall of Bumm, which is one important step for localization and phagocytosis.

The organisms commonly causing this condition are a long and short chain of streptococci, streaphylococci of all kinds, gnococci, various gas-forming bacilli. In all these, and in all conditions, no matter where, in a hovel or in a large maternity ward, cleanliness before, during, and after delivery is to be tried for. Let it be said of none of us, that we introduced a new organism into the genital tract. There should be avoidance of unclean vaginal examination and too frequent rectal examinations, and no manipulations whatsoever unless they can be done under aseptic conditions.

Now then, it is to be noted that this woman's blood count at the time of entry was three million reds, 65 per cent hemoglobin. The following day, with no further hemorrhage, the patient's blood count was one million eight hundred thousand. This is due to dilution of the blood and not to further hemorrhage.

Conclusion: Case is very well cared for and improvement due in part to the liberal use of ergot—which is seemingly non-toxic in this country—the intravenous, subcutaneous application of fluids, and the blood transfusion, which enabled her to overcome her blood stream infection.

A CASE OF UREMIA

(Continued from page 516)

was continued before any results were obtained, then fecal matter was obtained by enemata. During this time no further evidence of what might be an obstruction developed, except a persistence of vomiting, sometime fecal material. The patient was given castor oil after it was sure that no obstruction was present, and after the enemata had produced results. During this time, I was wondering if this patient was developing a toxic necrosis of the liver,

or a flare-up in his nephritis, but repeated urinalysis failed to show very serious trouble. In fact, during the whole course of his illness, the urine did not show a very serious nephritis.

During the following week, the bowels were moved daily with saline cathartics, but it was quite a problem to get the patient to retain fluids or food, vomiting was present every day, but I felt he was getting enough retention to keep up the water balance and to prevent acidosis. He was also given intravenous glucose during this time. His urinary output was satisfactory, and there was no change in blood pressure, or other symptom or sign to warn us of impending danger. Meanwhile, too, a gastro-intestinal x-ray examination was made, with negative results.

Ten days, then, after admission, on Feb. 15, I walked into the patient's room and found him much more sick that he was the evening before. He had begun to get delirious over night, and began to have repeated twitching of the muscles and tendons of the arms, legs, face and eyelids. The blood pressure rose over night to 200/110, and he was having smothering spells. The temperature was normal, the pulse 72, strong and regular. The superficial and deep reflexes were all exaggerated. There was a partial aphasia, and thick speech, hallucinations, tinnitus, and diplopia, with a diminution in the acuity of sight, loss of memory and orientation. The body itched badly, especially the chest, scalp, and legs. Vomiting returned with increased vigor, and convulsions seemed to be impending. The face was puffy, and the skin more waxy in color. During that day there was only 375 cc. of urin passed, and a urinalysis showed an alkaline urine, 1012 sp. gr., trace of albumin, occasional hyaline cast, 10 to 15 red blood cells, and 8 to 10 white blood cells. The white count was 6,400. Treatment was directed toward elimination by intravenous glucose, and salines by mouth and rectum, chloral and bromides, by mouth, and intramuscular injections of an ampoule of magnesium sulphate every three hours. A blood chemistry done that day showed urea nitrogen 75 mgm. and creatinine 7.5 mgm.

The next day, the urinary output increased to 900 cc., and there was a definite improvement in the patient's mental condition, although the twitchings, itching, puffy face, waxy color and vomiting continued. The blood pressure was 170/100. On Feb. 17, the next day, the blood pressure was 148/102, and the twitchings became less severe, except when the patient was asleep. Th dosage of the magnesium sulphate injections was reduced to one every 4 hours. On Feb. 18, the blood pressure was 146/104. Twitchings were much less frequent, and patient was fairly well oriented, talked more coherently and clearly. Pulse stayed full, regular and strong. Urine showed a trace of albumin, an occasional hyaline cast, and occasional pus and blood cell. Magnesium sulphate injections (50 per cent) dosage reduced to one every six hours. Voided 1250 cc.

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On Feb. 19th, the blood pressure was 154/102, and patient began to retain food much better. He voided 1350 cc. during the night and 1875 cc. during the day. On Feb. 20th, the blood pressure was 160/106, and patient voided good amounts, was much less nervous, and began to retain all food given. Output 3700 cc. He was getting, from this time on, from 4000 to 5000 cc. of fluid every 24 hours, and then by Feb. 22, with a blood pressure of 164/104, the magnesium sulphate was reduced in dosage to three times daily. Patient had now gone with only one vomiting spell for 72 hours, and the creatinine had dropped to 2.7 mgm. The urine was now negative. After the 22nd of Feb. until the 25th, when the patient was released, magnesium sulphate was discontiued, because the patient was well on the road to recovery, and the blood pressure on the day of release was 140/90. Since that time, the patient has been under observation, and is doing very well.

This case is interesting to me because of its peculiar development, the sudden onset overnight of a full-blown uremia, ten days after hospitalization, and under constant observation, with frequent checks on the urine, blood pressure, and other factors. He undoubtedly had had kidneys functioning below par for some time past, and they, along with the liver, were being abused by an over-indulgence in alcoholics of questionable purity, then he had an attack of influenza, and signs and symptoms of a gastro-intestinal or liver upset, progressing to the point in severity of fecal vomiting. At no time did I notice an odor of acetone or uriniferous odor on the breath. Proper clinical observation of this patient might have been lacking somewhat, but certainly the information which was obtained did not show us cause to feel alarmed about kidney elimination. The financial burden to the patient did not permit of adequate laboratory work, perhaps, and, as you all know, we do at times have to

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Alcoholism may be divided into acute and chronic types. Most of the acute cases do not require medical care, but occasionally too much alcohol or poisonous liquors are taken and then expert attention is required. Poisons—methal alcohol, etc.—Usually act so quickly after the first symptoms are noticed, that supportive treatment is all that is left.

Overdoses of alcohol require heroic measures. The stomach should be lavaged, sedatives given to control the delirium and large doses of 50% Glucose solution should be injected intravenously, to control the cerebral oedema; withdrawal of alcohol should be gradual.

Chronic alcoholism usually must be treated in a Hospital under skilled hands. Three to four weeks are required. The psychi background of the patient must be considered and, for this reason, morphine must not be used to control these patients. The intake of alcohol is gradually reduced and when withdrawal is completed and symptoms have disappeared, a thorough cleansing of the patient's system is indicated. Then rest and tonic treatment will usually return the patient to his family in the above stated time.

Alcoholism is a serious problem because of the economic loss to the patient. There are few businesses where an alcoholic can prosper. But, the profession should remember that there are some individuals who attain their success because of their alcoholism, not in spite of it. These men should not be interfered with and careful judgment on the part of the physician is required in selecting his cases.

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accede to the wishes of patient as to carrying out investigations which he does not want.

This case, also, I think, illustrates the efficacy of the use of magnesium sulphate in some of these cases of uremia. It helps to control edema of the brain, it helps to reduce blood pressure, and it stimulates the kidneys to increase elimination. During the past year, there have been a number of articles appearing in various magazines in this country, as well as abroad, dealing with the use of magnesium sulphate in series of cases of uremia, both in children and in adults.

FALSE RUMORS CONCERNING VIOSTEROL DENIED BY DR. STEENBOCK

Ever since viosterol was offered to the medical profession about 4 years ago, it has been attacked by various persons. Some of these attacks no doubt were sincerely motivated, but others were seized upon and exaggerated by interests who had no viosterol to sell.

Recently a new form of anti-viosterol propaganda has been reported by physicians all over the country. It is circulated by word of mouth—never in writing—and the apparent purpose is to influence physicians to prescribe vitamin D agencies other than viosterol.

Physicians are being told, for example, that Dr. Harry Steenbock has "condemned" viosterol, that the Wisconsin Alumni Research Foundation "would withdraw viosterol from the market in 90 days," etc., etc.

In answer to these malicious untruths, Dr. Harry Steenbock makes the following statement:

"Viosterol in its various forms has to date been found fully as valuable in medical practice as was anticipated at the time that it was first introduced to the American markets. Up to the present time there have been no reports of any untoward effects from its administration, although originally it was anticipated from the results of animal experiments that some cases of intoxication might result from its use in human medicine. . . . . I see no necessity for reversing my original opinion as to its outstanding merits in any way whatsoever. Any statement to the contrary can be definitely labeled as false." (Signed) H. Steenbock.

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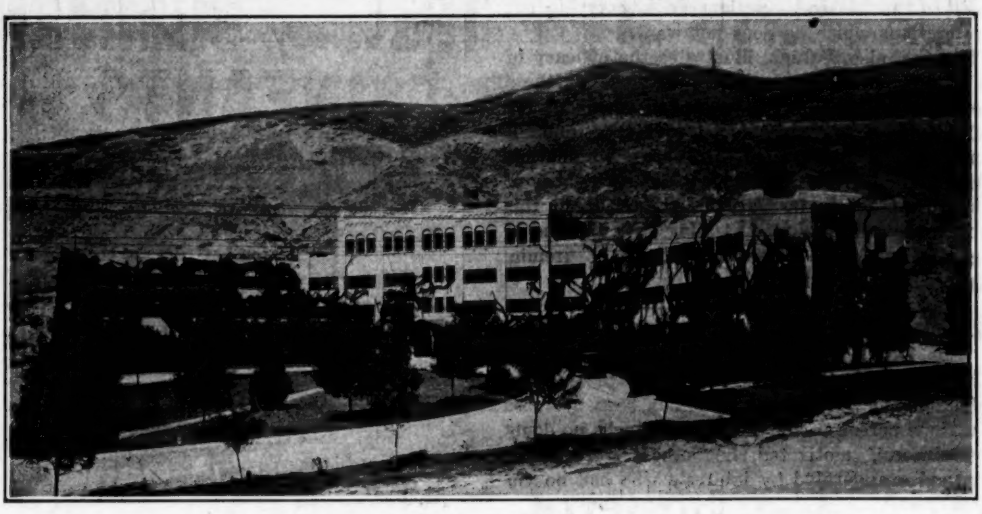

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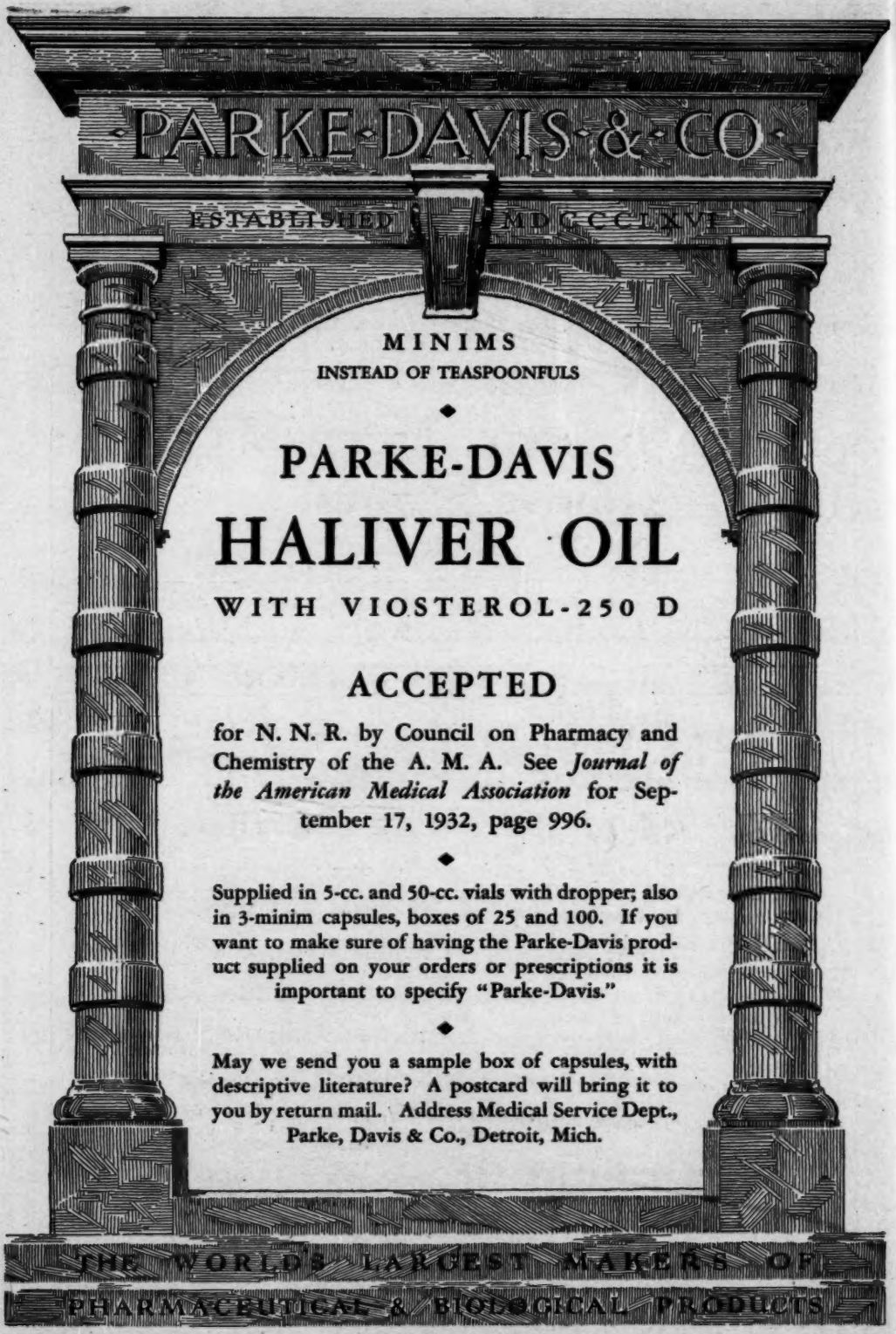

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(1) Golden yellow color, not dark brown; (2) lowest acidity — 0.7%; (3) highest potency — 100,000 U. S. P. vitamin A units and 3,333 Steenbock vitamin D units; (4) undiluted — no vegetable oil or other diluent; (5) one-fifth of the vitamin D in this product is supplied by the *undiluted* halibut liver oil.

MEAD'S VIOSTEROL IN HALIBUT LIVER OIL 250 D is for sale at drug stores in 5 c.c. and 50 c.c. brown bottles in light-proof cartons to prevent the vitamin-deteriorating action of light. The unique combination dropper-and-stopper prevents waste and minimizes contamination in use. No dosage directions accompany the package. Samples to physicians on request.

DOSAGE TO PHYSICIANS: *This is the same as with Mead's Viosterol in Oil 250 D: Infants, 10 drops daily; prematures and rapidly-growing children, 15 drops; older children, 10 to 20 drops; adults, especially pregnant and nursing mothers, 25 drops or more. Special cases may require larger dosage.*

MEAD JOHNSON & CO., Evansville, Ind., *Pioneers in Vitamin Research*

Please enclose professional card when requesting samples of Mead Johnson products to cooperate in preventing their reaching unauthorized persons

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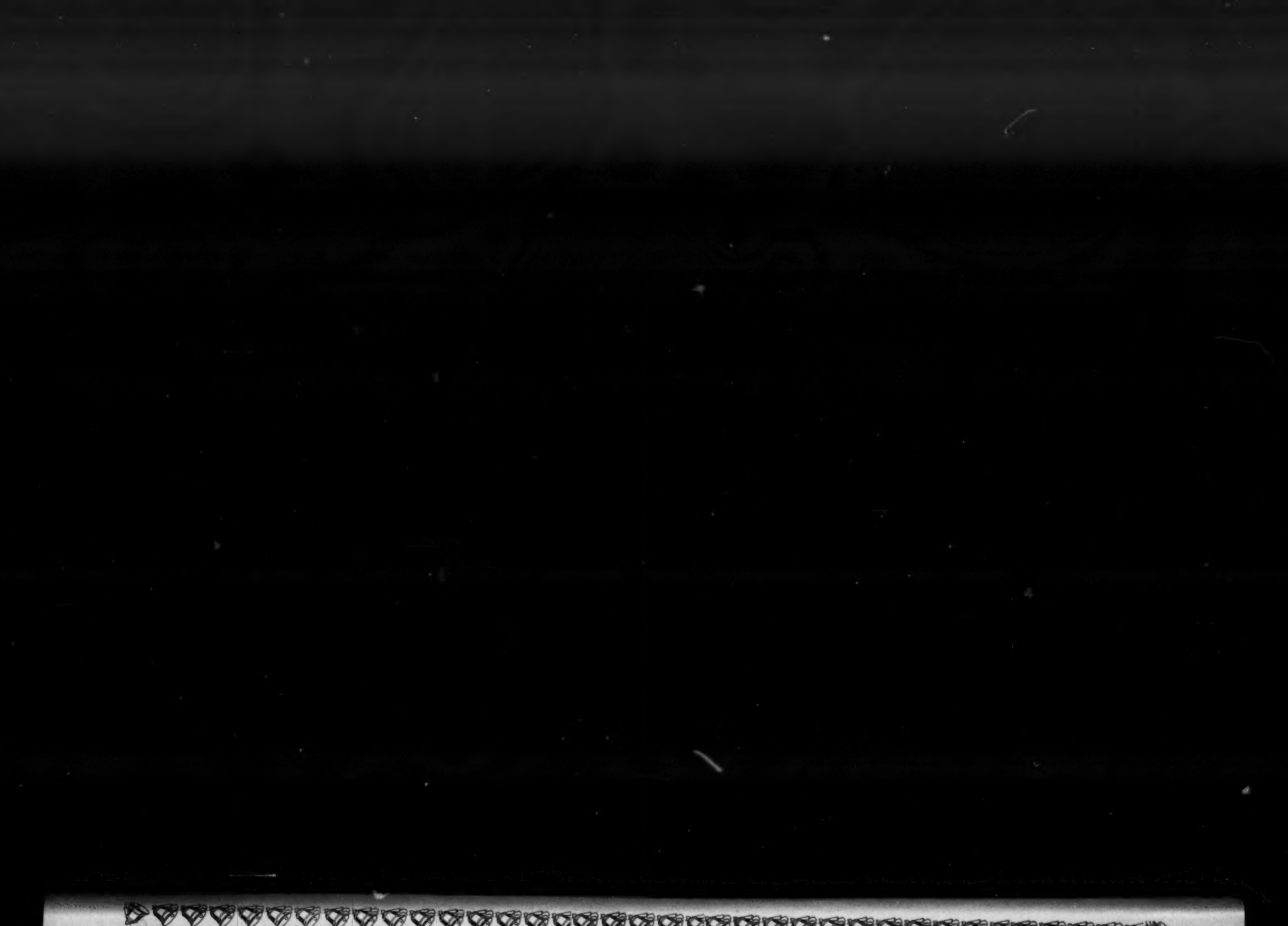
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Wm. J. Horspool, Bus. Mgr.